# DKM-Motoren

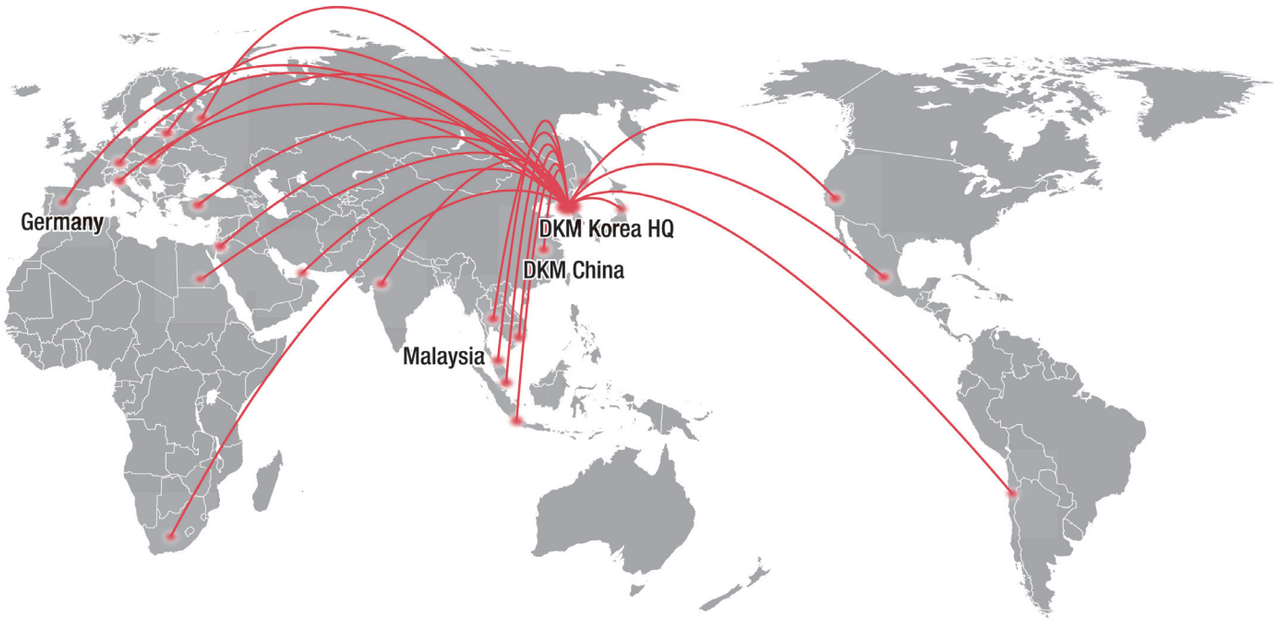
Katalog 03-2023
Teil 1

DKM
motor & gearbox

DKM

The power to move the world,
there is DKM at the center.
DKM

# Global Network



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# HISTORY

**2020** Newly launched 'DSY SERIES'

**2019** Newly launched 'HELICROSS GEARBOX' (patent)

**2018** Relocation and extension of global headquarters

Acquired 'EMCD, LVD , KC Mark (FX3000 )'

Acquired 'ISO9001 / 14001 Certification'

Acquired 'RoHS, Reach Certification'

**2015** Acquired 'TUV certificate' (Europe UL1004-1)

Acquired 'RU Mark'

Newly launched '400W small geared motor' (patent)

Acquired 'CE Mark'

**2014** Received 1 Million Dollor Export Tower Award at the

51st 'Trade Day Commemoration Ceremony'

**2011** Unveiled a New Coporate Identity

**2009** Established 'DKM Europe ' in Germany

**2008** Established 'DKM South Asia Pte Ltd.' in Singapore

**2005** Established ' DKM Shanghai Co., Ltd.' in Shanghai, China

**2002** Acquired ISO 9001:2000

**2000** Changed company name to DKM Co ., Ltd ., the holding company

**1999** Acquired CE Mark(in some parts of Induction Motor)

Advanced into Europe

**1995** Starts export to India, Indonesia and Malaysia

**1994** Acquired 'NT -New Technology Mark ' from Korean government

**1993** Acquired 'Q Mark' in Small Gearbox division from Korean government

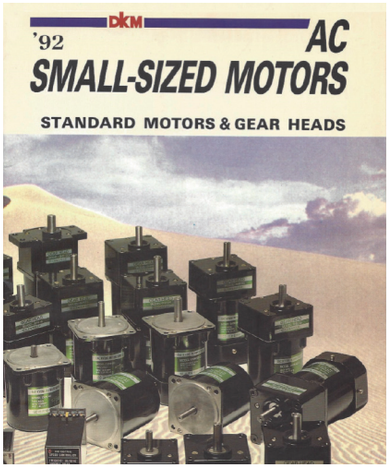
**1990** Starts export to overseas markets including China

**1987** Developed 'Small Geared Motor' first time in Korea

**1983** The father company,

'Daekyung Machinery Co.'

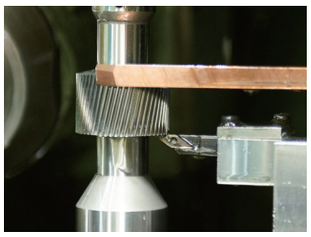
founded (in Guro-gu, Seoul)

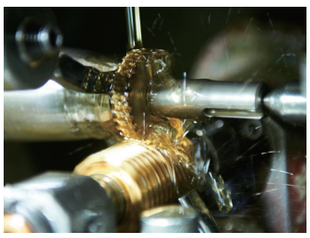
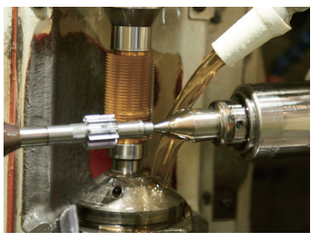


# Production

## Metal Processing

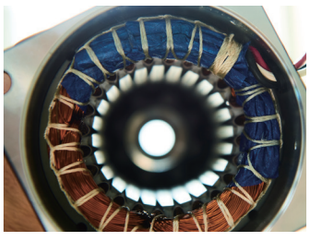
DKM Motor has a long worth of knowledge in manufacturing metal processing components since its foundation. We are making all metal cutting processes: turning with single or multi-spindle machines, gearing by hobbing machine, heat treatments and hardening processes.



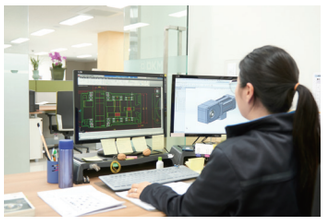
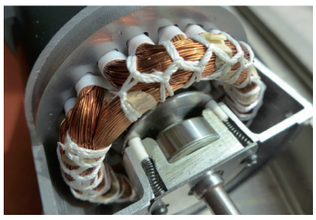
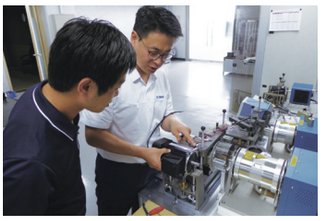
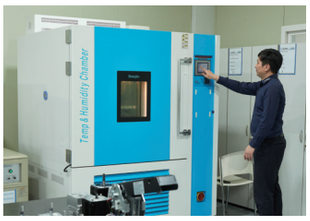
## Assembly and Test

By using the precision assembly machines DKM Motor is making assembly of the selected components by the internal quality standard.We are making total 3 times test ; the test of the components before assembly, the test after assembly and the final shipping test after assembly of motor and gearbox.



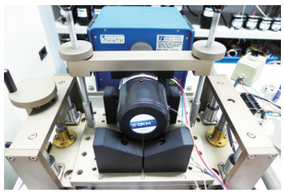
## R&D

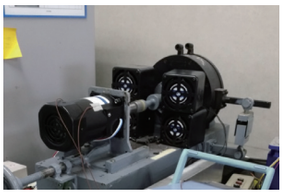
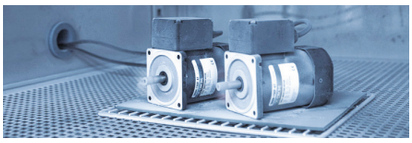
The design department of DKM Motor is connected to the development of all products and our R&D team is on standby for comprehensive and fast adaptations to match your specific requirements and specifications .


## Laboratories

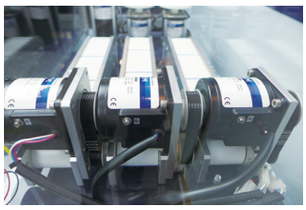
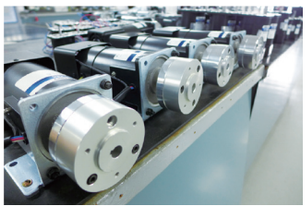
DKM Motor carries out stress, wear, tear, and life tests with the test machines.
Through this test process in our test laboratory, we can get the permissible torque and other limit values of each product to meet the required demands.



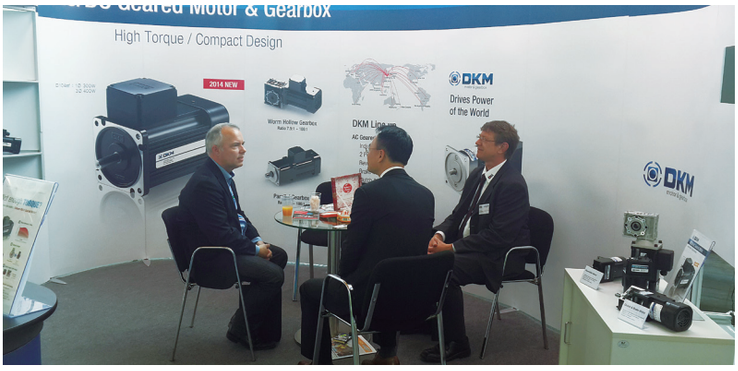
## Quality Assurance

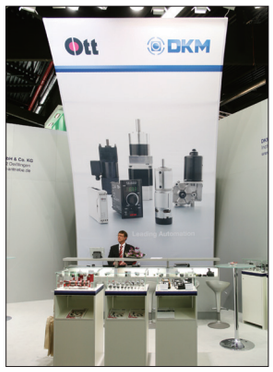
We always carry out the reliability test for sampling products from all manufactured products.
By this test we can handle any faulty in advance.

# Marketing

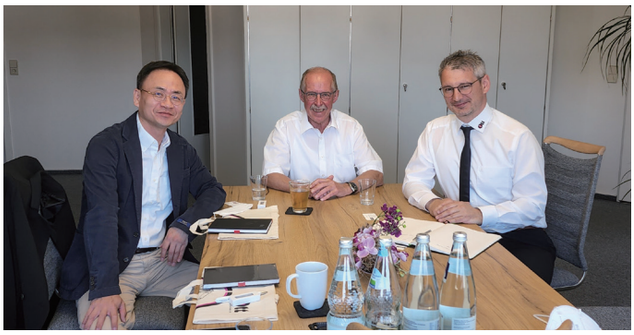
DKM Motor is making its efforts to inform the customers of the products by the effective method through various marketing channels. Since its establishment in 1983, we have participated continuously in domestic/overseas industry/machinery exhibitions and introduced our products through dealer conferences/technical seminars, and received the requirements from agencies and users to reflect in the production of the products.
Besides, through the regular distribution of press releases, sending newsletters, etc. we are delivering the news and information on new products of DKM Motor quickly.



## Partners Conferences

DKM Motor holds conferences with our partners regularly all over the world.
This conferences enable DKM Motor and the partner companies to communicate and exchange the news each other.



## Technical Seminar

# DKM Products Overview

## AC MOTORS

### Induction Motor

**For Continuous Operation**
- Appropriate for one way continuous running
- It stops in 2sec after the machine is switched off (Overrun : 30~40times)
- Possible for reverse rotation

Lead Wire Type

Terminal Box Type

### 2 Pole Motor

**For High Speed Rotation**
- 3,600 r/m (60Hz)
- 3,000 r/m (50Hz)
- Used without a gearbox
- Possible for reverse rotation

Lead Wire Type

Terminal Box Type

### Reversible Motor

**For Bi-Directional Operation**
- Built-in simple brake mechanism makes overrun small
- Appropriate for the machine which needs to change the direction frequently
- Fixed speed operation + simple position control (Position control level : ★☆☆☆☆)
- It stops in 0.5 sec after the machine is switched off(Overrun : 5~6 times)
- Possible for reverse rotation

Lead Wire Type

Terminal Box Type

### Brake Motor

**For maintaining load**
- Induction Motor with a brake to stop and hold a load
- Fixed speed operation + simple position control (Position control level : ★★☆☆☆)
- It stops in 0.2 sec after the machine is switched off (Overrun:2~3times)
- Possible for reverse rotation

### Clutch & Brake Motor

**For Frequent Start/Stop Operation**
- Structure with an internal clutch and brake mechanism
- Fixed speed operation + simple position control (Position control level : ★★★☆☆)
- It stops in 0.1 sec after the machine is switched off(Overrun : 1time)
- Used always with a gearbox
- Possible for reverse rotation

### Torque Motor

**For Torque Adjustment with ease**
- Suitable for Tension Control or Winding and Unwinding Applications
- Motor Torque can be adjusted with ease by using a torque controller
- Possible for reverse rotation
- Torque controller : DX3000, FX3000

**FX3000**
- Including control knob (Digital display)
- Built-in Capacitor
- Speed or Torque control

**DX3000**
- RS-485 communication control
- PLC I/O control
- Speed and Torque Control
- DIN Rail Type

### Speed Control System

- Speed Control Induction Motor
- Speed Control Reversible Motor
- Speed Control Brake Motor
- Speed Control Clutch&Brake Motor

- Speed control motor allows you to set and adjust the speed of the motor easily by using a speed controller
- Speed Controller: FX3000, DX3000, DSA, DSKM

**FX3000**
- Including control knob (Digital display)
- Built-in Capacitor
- Speed or Torque control

**DX3000**
- RS-485 communication system
- PLC I/O control
- Speed or Torque Control
- DIN Rail Type

**DSA**
- Including control knob (Analog type)
- Unit Type (Connecting to a motor using a connector)
- Capacitor built-in

**DSKM**
- Including control knob
- Possible to be used with an external controller
- Socket type (wiring a motor to a socket)

## DC MOTORS

### DC Motor

- Big starting torque and high efficiency
- Easy to control the speed and reverse the direction
- Superiority in the responsiveness of start and stop
- Possible to attach a parallel and worm gearbox

### Speed Controller DSD-90

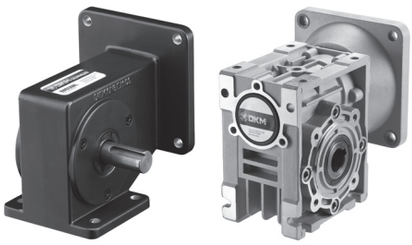
- Applicable to DC 90V motor
- Front panel potentiometer, Unit type

## Gearboxes

### Parallel Gearbox

- General Box Type, Powerful Box / Flange Type, High Powerful Box / Flange Type
- Frame Size: 60/70/80/90/104mm
- Gear Ratio: 2 : 1~360 : 1

### Worm Gearbox



- Maximum use of space
- Worm Solid Type Gearbox
  Frame Size: 80/90mm, Gear Ratio: 10 : 1~60 : 1
- Worm Hollow Type Gearbox
  Frame Size: 90mm/104mm, Gear Ratio: 5 : 1~100 : 1

### Inter-decimal Gearbox

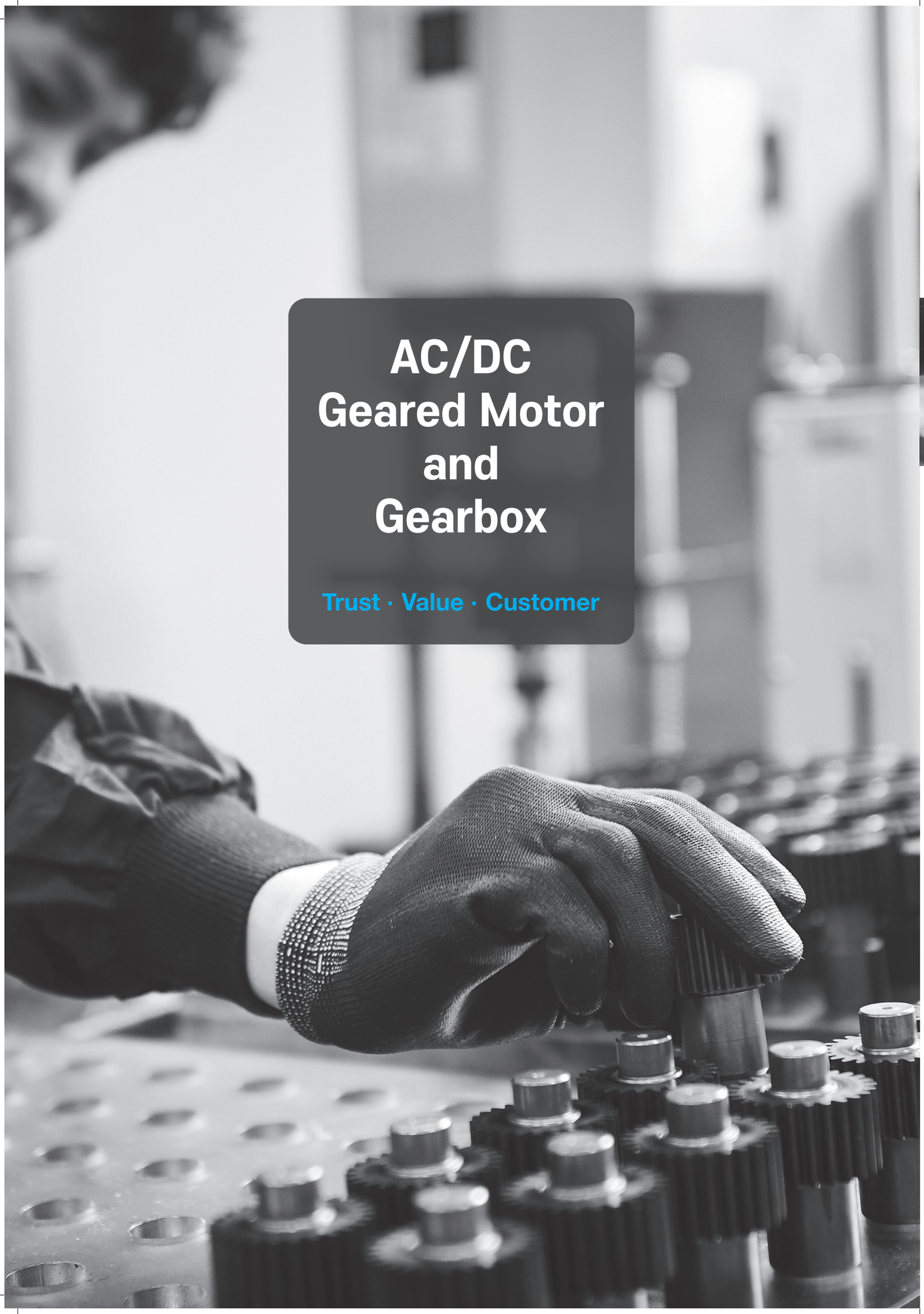
- In case of requiring high gear ratio that cannot be generated by single gearbox
- Frame Size: 80/90mm
- Gear Ratio: 10 : 1

### Helicross Gearbox

- Concentric and hollow structure right angle gearbox
- Frame Size: 90/104mm
- Gear Ratio: 15:1 ~ 240:1

### DSY Series

- Compact Size
- Design optimized for helical gear
- Non-separable geared motor
- Gea Ratio : 7.5:1 ~ 60:1



# AC/DC Geared Motor and Gearbox

Trust · Value · Customer

# Contents


## A Information

**A-01** Product Coding System
**A-04** Product Lineup
**A-09** Combination table
**A-13** General Information
**A-17** Terminology
**A-20** Caution for Use

## B AC Motors

**B-01** Technical Data of AC Motor
**B-06** Induction Motor
**B-58** 2 Pole Motor
**B-76** Reversible Motor
**B-112** Brake Motor
**B-162** Clutch & Brake Motor
**B-178** Torque Motor
**B-206** Speed Control System
- **B-209** Speed Controller FX3000
- **B-213** Speed Controller DX3000
- **B-217** Speed Controller DSA
- **B-219** Speed Controller DSKM
- **B-224** Speed Control Induction Motor
- **B-258** Speed Control Reversible Motor
- **B-288** Speed Control Brake Motor
- **B-322** Speed Control Clutch & Brake Motor

**B-336** DSY Series

## C DC Motors

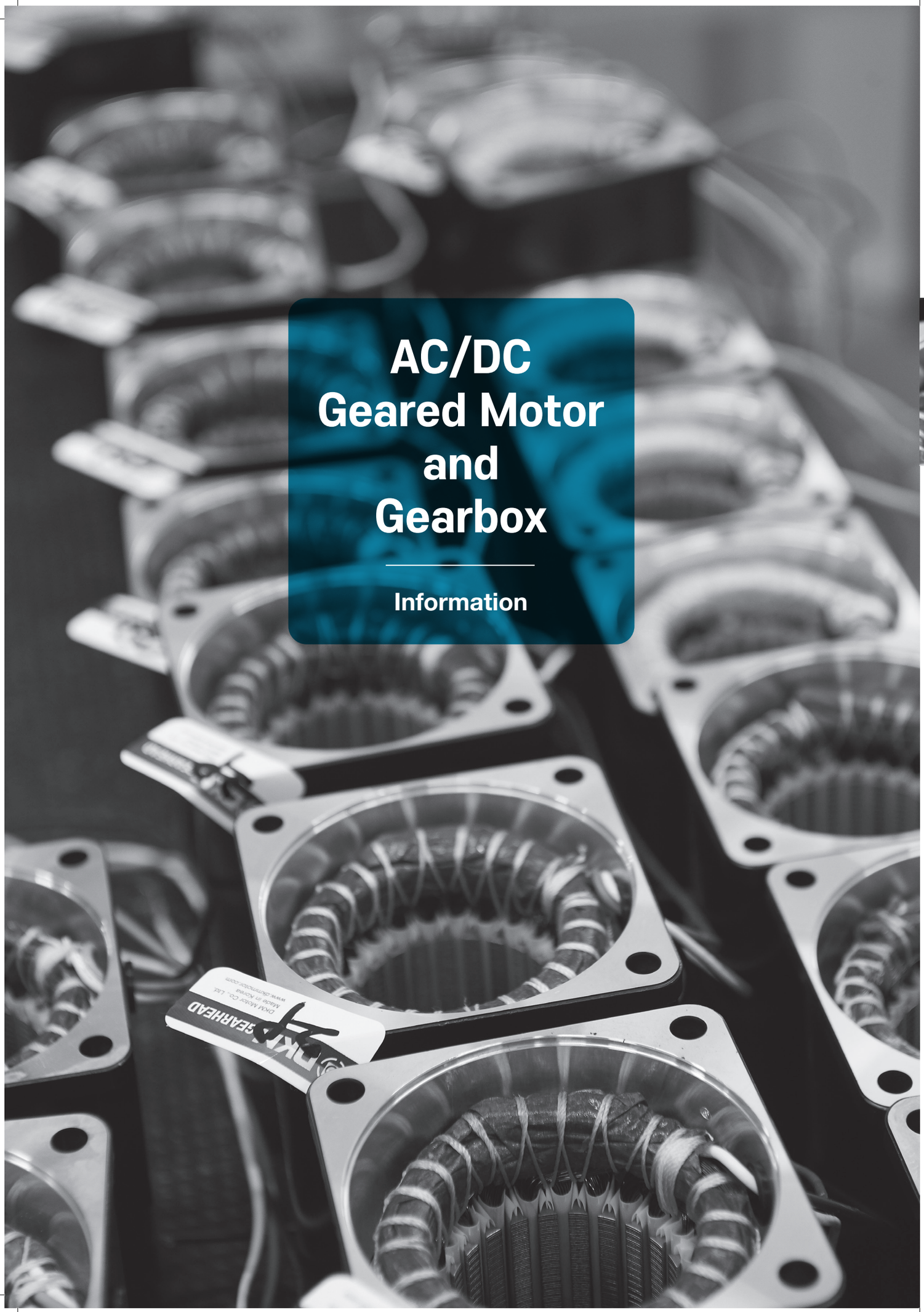
**C-01** Technical Data of DC Motor
**C-04** DC Motor
**C-20** Speed Controller DSD-90

## D Gearboxes

**D-01** Technical Data of Gearbox
**D-07** Parallel Gearbox
**D-13** Right-Angle Gearbox
**D-18** Inter-decimal Gearbox

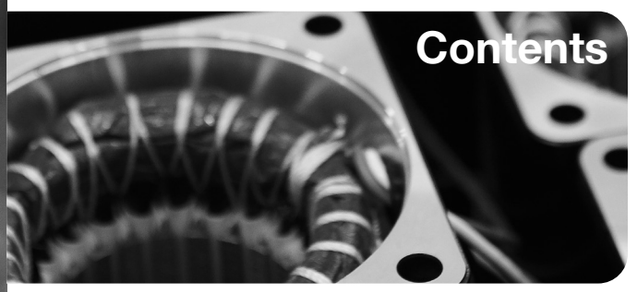
## E Options

**E-01** Mounting Bracket
**E-03** Extension Cable
**E-04** Output Flange / Output Shaft




# AC/DC Geared Motor and Gearbox

Information



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B-01 Technical Data of AC Motor
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B-336 DSY Series

## C DC Motors

C-01 Technical Data of DC Motor
C-04 DC Motor
C-20 Speed Controller DSD-90

## D Gearboxes

D-01 Technical Data of Gearbox
D-07 Parallel Gearbox
D-13 Right-Angle Gearbox
D-18 Inter-decimal Gearbox

## E Options

E-01 Mounting Bracket
E-03 Extension Cable
E-04 Output Flange / Output Shaft

# A Information

## Product Coding System

### AC Motors

**Phase & Voltage**
- 1 : 1Ø AC 110V 60Hz
- 2 : 1Ø AC 220V 60Hz
- 3 : 3Ø AC 220V~230V 50/60Hz
- 4 : 3Ø AC 380V~400V 50/60Hz
- 5 : 3Ø AC 415V~440V 50/60Hz
- 6 : 3Ø 220/380V 60Hz
- 7 : 3Ø 230/400V 50Hz
- 8 : 3Ø 440V 50Hz/60Hz

**Motor**
- I : Induction Motor
- R : Reversible Motor
- B : Brake Motor
- CI : Clutch & Brake Motor
- T : Torque Motor
- S : Speed Control Induction Motor
- SR : Speed Control Reversible Motor
- SB : Speed Control Brake Motor
- CS : Speed Control Clutch & Brake Motor

**'Thermal Protector' Attached**
- A : 1Ø AC 110V 60Hz
- D : 1Ø AC 220V 60Hz
- E : 1Ø AC 220~240V 50Hz
- G : 3Ø AC 220V~230V 50/60Hz
- K : 3Ø AC 380V~400V 50/60Hz
- L : 3Ø AC 415V~440V 50/60Hz

**Fan Type**
- F : General Fan (Self-ventilation)
- F2 : Powerful Fan (Forced ventilation)
  Powerful fan makes powerful cooling performance rotating in high speed regardless of motor shaft speed.
- No Mark : No Fans

**Connection Type**
- T : Terminal Box Type
- C : Connector Type (Speed Motor)
- No Mark : Lead Wire Type

**Pole**
- A : 2 Pole
- No Mark : 4 Pole

**9 I D G A — 90 F P — A T**

**Brand**
- D : DKM

**Output Shaft Type**
- G : Gear Type Shaft (Pinion Shaft for Attaching Gearbox)
- D : D-Cut Type Shaft
- K : Key Type Shaft

**Motor Frame Size**
- 6 : □60mm sq. (2.36 in.sq.)
- 7 : □70mm sq. (2.76 in.sq.)
- 8 : □80mm sq. (3.15 in.sq.)
- 9 : □90mm sq. (3.54 in.sq.)
- 10 : □104mm sq. (4.09 inch sq.)

**Output**
- 6 : 6W
- 10 : 10W
- 15 : 15W
- 25 : 25W
- 40 : 40W
- 60 : 60W
- 90 : 90W
- 120 : 120W
- 150 : 150W
- 180 : 180W
- 200 : 200W
- 250 : 250W (E)
- 300 : 300W (D, 7, 8)
- 400 : 400W (6)

**Attaching Gearbox**
- G : General Box Type (6W~40W)
- P : Powerful Box/Flange Type (40W~120W)
- H : High Powerful Box/Flange Type (60W~200W)
- U : Ultra Powerful Box Type (250W~400W)
- W : Worm Solid Type (15W~120W)
- WH : Worm Hollow Type (030/040) (60W~400W)
- HC : Helicross Gearbox (90/104mm) (90W~400W)
- No Mark : Without Gearbox

### DSY Series

**DSY 20 B — 060 N 020 — 3**

**Gearbox Type**
DSY Series

**Frame Number**
20, 25, 30

**Output shaft material**
B(S45C), S(SUS)

**Gear Ratio**
7.5, 010, ..., 060

**Motor**
N (Induction)
B (Brake)

**Motor Output**
010(0.1kW), 020(0.2kW), 040(0.4kW)

**Voltage**
- 3 : 220V 50/60Hz
- 4 : 380V 50/60Hz
- 5 : 440V 50/60Hz

### DC Motors

**9 DC G 12 — 25 — 30**

**DC**
DC MOTOR

**Output Shaft Type**
- D : D-Cut Type Shaft
- K : Key Type Shaft
- G : Shaft for General Type Gearbox(15W~120W)
- P : Shaft for Powerful Type Gearbox(60W~120W)
- W : Shaft for Worm Solid Type Gearbox(25W~120W)
- H : Shaft for High Powerful Box/Flange Type Gearbox (200W)

**Motor Frame Size**
- 6 : □60mm sq. (2.36 in.sq.)
- 8 : □80mm sq. (3.15 in.sq.)
- 9 : □90mm sq. (3.54 in.sq.)

**DC Voltage**
- 12 : DC 12V
- 24 : DC 24V
- 90 : DC 90V

**Output**
- 15 : 15W
- 25 : 25W
- 40 : 40W
- 60 : 60W
- 90 : 90W
- 120 : 120W
- 200 : 200W

**r/min**
- 30 : 3000r/min

## Parallel Gearbox

**Gearbox Frame Size**
- **6** : □ 60mm sq. (2.36 in.sq.)
- **7** : □ 70mm sq. (2.76 in.sq.)
- **8** : □ 80mm sq. (3.15 in.sq.)
- **9** : □ 90mm sq. (3.54 in.sq.)
- **10** : □ 104mm sq. (4.09 in.sq.)

**Frame Type**
- **B** : Box Type
- **F** : Flange Type (Only available for powerful and high powerful type Gearbox)

**Bearing Type**
- **B** : Ball Bearing
- **BM** : Ball Bearing + Metal Bearing
- **M** : Metal Bearing

**9 P B K 36 B H**

**Gear Type**
- **G** : General Gear (6W~40W)
- **P** : Powerful Gear (40W~120W)
- **H** : High Powerful Gear (60W~200W)
- **U** : Ultra Powerful Gear (250W~400W)

**Output Shaft Type**
- **K** : Key Type
- **D** : D-Cut Type

**Gear Ratio**
- **36** : 1/36

**Input Gear Type**
- **H** : Helical Gear

## Worm Solid Gearbox

**Gearbox Type**
- **W** : Worm Solid Type Gearbox (15W~120W)

**Gear Ratio**
- **30** : 1/30

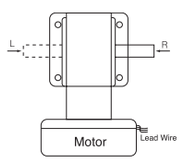
**Direction of Output Shaft**
- **L** : Left
- **R** : Right
- **RL** : Bi-directional

**9 W D 30 B L**

**Gearbox Frame Size**
- **8** : □ 80mm sq. (3.15 in.sq.)
- **9** : □ 90mm sq. (3.54 in.sq.)

**Brand**
- **D** : DKM

**Bearing Type**
- **B** : Ball Bearing




※ Ref.
1. Direction of Output Shaft –
L : Left R : Right
2. When direction of lead wire is right side of motor.

## Worm Hollow Gearbox

**Gearbox Type**
- **WH** : Worm Hollow Gearbox (60W~400W)

**Gear Ratio**
- **30** : 1/30

**9 WH D 30 — 030**

**Gearbox Frame Size**
- **9** : □ 90mm sq. (3.54 in.sq.)
- **10** : □ 104mm sq. (4.09 in.sq.)

**Brand**
- **D** : DKM

Center Distance between Worm Wheel and Shaft
- **030** : 30mm
- **040** : 40mm

## Helicross Gearbox

**Gearbox Type**
- **HC** : Helicross Gearbox (90W ~ 400W)

**Output Shaft Material**
- **B** : S45C
- **S** : SUS

**9 HC 240 B**

**Gearbox Frame Size**
- **9** : □ 90mm sq. (3.54 in.sq.)
- **10** : □ 104mm sq. (4.09 in.sq.)

**Gear Ratio**
- **240** : 1/240

# A Information

## Product Coding System

### Inter-decimal Gearbox

**X10 Inter-decimal Gearbox**

G : 'G' Type Shaft Motor (40W)
P : 'P' Type Shaft Motor (40W~120W)

**9 X D 10 G Z**

**Gearbox Frame Size**
8 : □ 80mm sq. (3.15 in.sq.)
9 : □ 90mm sq. (3.54 in.sq.)

**Brand**
D : DKM

**Gear Ratio**
10 : 1/10

**Attaching Gearbox**
G : General Type (Helical)
P : Powerful Type
H : High Powerful Type
Z : Worm Hollow Type
W : Worm Solid type

In case of requiring high gear reduction ratio that cannot be generated by single gearbox, please use inter-decimal gearbox with a general gearbox.
And please be advised that in this case only revolution speed of output shaft will be reduced by 10:1 without increasing of maximum permissible torque.

### Assembly of Motor and Gearbox

#### Motor + Gearbox

- As shown in the following scheme, the motor and the gearbox which have same frame size and gear type could be assembled.

Motor — Parallel Gearbox

**8 I D G E - 25 G** — **8 G B K 36 B M H**

Frame Size(□80mm)

Gear: G Type

Motor — Worm Gearbox

**9 I D G E - 60 F W** — **9 W D 36 B L**

Frame Size(□90mm)

Gear: W Type

#### Motor + Inter-decimal Gearbox + Gearbox

- When using an inter-decimal gearbox together, give attention to the gear types of a motor, a gearbox and an inter-decimal gearbox.

Motor — Inter-decimal Gearbox — Gearbox

**9 I D G E - 40 G** — **9 X D 10 G G** — **9 G B K 36 B M H**

Frame Size(□90mm)

Gear: G Type

Gear: G Type

## Products Lineup

# AC Motors

| Frame Size | Voltage / Output | Induction Motor | | | | | | | | | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | 6 3Ø 220/380V 60Hz | 7 3Ø 230/400V 50Hz | 8 3Ø 440V 50/60Hz | |
| 60mm | 6W | 6ID*1-6□(-T) | 6ID*2-6□(-T) | 6ID*E-6□(-T) | 6ID*3-6□(-T) | - | - | - | - | - | B-09 |
| 70mm | 6W | 7ID*1-6□(-T) | 7ID*2-6□(-T) | 7ID*E-6□(-T) | - | - | - | - | - | - | B-11 |
| | 10W | 7ID*1-10□(-T) | 7ID*2-10□(-T) | 7ID*E-10□(-T) | - | - | - | - | - | - | B-13 |
| | 15W | 7ID*1-15□(-T) | 7ID*2-15□(-T) | 7ID*E-15□(-T) | 7ID*3-15□(-T) | - | - | - | - | - | B-15 |
| 80mm | 15W | 8ID*1-15□(-T) | 8ID*2-15□(-T) | 8ID*E-15□(-T) | 8ID*3-15□(-T) | 8ID*4-15□(-T) | 8ID*5-15□(-T) | - | - | - | B-17 |
| | 25W | 8ID*1-25□(-T) | 8ID*2-25□(-T) | 8ID*E-25□(-T) | 8ID*3-25□(-T) | 8ID*4-25□(-T) | 8ID*5-25□(-T) | - | - | - | B-20 |
| | 40W | 8ID*1-40F□(-T) | 8ID*2-40F□(-T) | 8ID*E-40F□(-T) | - | - | - | - | - | - | B-23 |
| 90mm | 40W | 9ID*1-40□(-T) | 9ID*2-40□(-T) | 9ID*E-40□(-T) | 9ID*3-40□(-T) | 9ID*4-40□(-T) | 9ID*5-40□(-T) | - | - | - | B-25 |
| | 60W | 9ID*1-60F□(-T) | 9ID*2-60F□(-T) | 9ID*E-60F□(-T) | 9ID*3-60F□(-T) | 9ID*4-60F□(-T) | 9ID*5-60F□(-T) | - | - | - | B-28 |
| | 90W | 9ID*1-90F□(-T) | 9ID*2-90F□(-T) | 9ID*E-90F□(-T) | 9ID*3-90F□(-T) | 9ID*4-90F□(-T) | 9ID*5-90F□(-T) | - | - | - | B-32 |
| | 120W | 9ID*1-120F□(-T) | 9ID*2-120F□(-T) | 9ID*E-120F□(-T) | 9ID*3-120F□(-T) | 9ID*4-120F□(-T) | 9ID*5-120F□(-T) | - | - | - | B-36 |
| | 150W | - | - | - | 9ID*3-150F□(-T) | 9ID*4-150F□(-T) | 9ID*5-150F□(-T) | - | - | - | B-40 |
| | 180W | 9ID*1-180F□(-T) | 9ID*2-180F□(-T) | 9ID*E-180F□(-T) | - | - | - | - | - | - | B-43 |
| | 200W | - | | - | 9ID*3-200F□(-T) | 9ID*4-200F□(-T) | 9ID*5-200F□(-T) | - | - | - | B-46 |
| 104mm | 250W | - | - | 10ID*E-250F□-T | - | - | - | - | - | - | B-49 |
| | 300W | - | 10ID*D-300F□-T | - | - | - | - | - | 10ID*7-300F□-T | 10ID*8-300F□-T | B-52 |
| | 400W | - | - | - | - | - | - | 10ID*6-400F□-T | - | - | B-55 |

| Frame Size | Voltage / Output | 2 Pole Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | |
| 80mm | 15W | 8ID*1-15-A(-T) | 8ID*2-15-A(-T) | 8ID*E-15-A(-T) | 8ID*3-15-A(-T) | - | - | B-59 |
| | 25W | 8ID*1-25-A(-T) | 8ID*2-25-A(-T) | 8ID*E-25-A(-T) | 8ID*3-25-A(-T) | - | - | B-61 |
| 90mm | 40W | 9ID*1-40-A(-T) | 9ID*2-40-A(-T) | 9ID*E-40-A(-T) | 9ID*3-40-A(-T) | 9ID*4-40-A(-T) | 9ID*5-40-A(-T) | B-63 |
| | 60W | 9ID*1-60F-A(-T) | 9ID*2-60F-A(-T) | 9ID*E-60F-A(-T) | 9ID*3-60F-A(-T) | 9ID*4-60F-A(-T) | 9ID*5-60F-A(-T) | B-65 |
| | 90W | 9ID*1-90F-A(-T) | 9ID*2-90F-A(-T) | 9ID*E-90F-A(-T) | 9ID*3-90F-A(-T) | 9ID*4-90F-A(-T) | 9ID*5-90F-A(-T) | B-67 |
| | 120W | 9ID*1-120F-A(-T) | 9ID*2-120F-A(-T) | 9ID*E-120F-A(-T) | 9ID*3-120F-A(-T) | 9ID*4-120F-A(-T) | 9ID*5-120F-A(-T) | B-69 |
| | 150W | - | - | - | 9ID*3-150F-A(-T) | 9ID*4-150F-A(-T) | 9ID*5-150F-A(-T) | B-71 |
| | 200W | - | - | - | 9ID*3-200F-A(-T) | 9ID*4-200F-A(-T) | 9ID*5-200F-A(-T) | B-73 |

| Frame Size | Voltage / Output | Reversible Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | |
| 60mm | 6W | 6RD*1-6□(-T) | 6RD*2-6□(-T) | 6RD*E-6□(-T) | - | - | - | B-79 |
| 70mm | 6W | 7RD*1-6□(-T) | 7RD*2-6□(-T) | 7RD*E-6□(-T) | - | - | - | B-81 |
| | 10W | 7RD*1-10□(-T) | 7RD*2-10□(-T) | 7RD*E-10□(-T) | - | - | - | B-83 |
| | 15W | 7RD*1-15□(-T) | 7RD*2-15□(-T) | 7RD*E-15□(-T) | - | - | - | B-85 |
| 80mm | 15W | 8RD*1-15□(-T) | 8RD*2-15□(-T) | 8RD*E-15□(-T) | - | - | - | B-87 |
| | 25W | 8RD*1-25□(-T) | 8RD*2-25□(-T) | 8RD*E-25□(-T) | - | - | - | B-90 |
| 90mm | 40W | 9RD*1-40□(-T) | 9RD*2-40□(-T) | 9RD*E-40□(-T) | - | - | - | B-93 |
| | 60W | 9RD*1-60F□(-T) | 9RD*2-60F□(-T) | 9RD*E-60F□(-T) | - | - | - | B-96 |
| | 90W | 9RD*1-90F□(-T) | 9RD*2-90F□(-T) | 9RD*E-90F□(-T) | - | - | - | B-100 |
| | 120W | 9RD*1-120F□(-T) | 9RD*2-120F□(-T) | 9RD*E-120F□(-T) | - | - | - | B-104 |
| | 180W | 9RD*1-180F□(-T) | 9RD*2-180F□(-T) | 9RD*E-180F□(-T) | - | - | - | B-108 |

1. Enter the output shaft type of motor (G: Gear Type/D: D-Cut Type/K: Key Type) in the place * within the motor model name.
2. Enter the model type of attaching gearbox (G Type/P Type/H Type/W Type/WH Type/HC Type) in the box (□) within the motor model name.
3. When using terminal box type motors, '-T' is added to the end of the motor model name.
4. The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
5. 60mm motors are Impedance Protected Type.

# A Information

## Products Lineup

### AC Motors

| Frame Size | Voltage / Output | Electromagnetic Brake Motor | | | | | | | | | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | 6 3Ø 220/380V 60Hz | 7 3Ø 230/400V 50Hz | 8 3Ø 440V 50/60Hz | |
| 60mm | 6W | 6BD*1-6□ | 6BD*2-6□ | 6BD*E-6□ | 6BD*3-6□ | - | - | - | - | - | B-115 |
| 70mm | 6W | 7BD*1-6□ | 7BD*2-6□ | 7BD*E-6□ | - | - | - | - | - | - | B-117 |
| | 10W | 7BD*1-10□ | 7BD*2-10□ | 7BD*E-10□ | - | - | - | - | - | - | B-119 |
| | 15W | 7BD*1-15□ | 7BD*2-15□ | 7BD*E-15□ | 7BD*3-15□ | - | - | - | - | - | B-121 |
| 80mm | 15W | 8BD*1-15□ | 8BD*2-15□ | 8BD*E-15□ | 8BD*3-15□ | 8BD*4-15□ | 8BD*5-15□ | - | - | - | B-123 |
| | 25W | 8BD*1-25□ | 8BD*2-25□ | 8BD*E-25□ | 8BD*3-25□ | 8BD*4-25□ | 8BD*5-25□ | - | - | - | B-126 |
| 90mm | 40W | 9BD*1-40□ | 9BD*2-40□ | 9BD*E-40□ | 9BD*3-40□ | 9BD*4-40□ | 9BD*5-40□ | - | - | - | B-129 |
| | 60W | 9BD*1-60F□ | 9BD*2-60F□ | 9BD*E-60F□ | 9BD*3-60F□ | 9BD*4-60F□ | 9BD*5-60F□ | - | - | - | B-132 |
| | 90W | 9BD*1-90F□ | 9BD*2-90F□ | 9BD*E-90F□ | 9BD*3-90F□ | 9BD*4-90F□ | 9BD*5-90F□ | - | - | - | B-136 |
| | 120W | 9BD*1-120F□ | 9BD*2-120F□ | 9BD*E-120F□ | 9BD*3-120F□ | 9BD*4-120F□ | 9BD*5-120F□ | - | - | - | B-140 |
| | 150W | - | - | - | 9BD*3-150F□ | 9BD*4-150F□ | 9BD*5-150F□ | - | - | - | B-144 |
| | 180W | 9BD*1-180F□ | 9BD*2-180F□ | 9BD*E-180F□ | - | - | - | - | - | - | B-147 |
| | 200W | - | - | - | 9BD*3-200F□ | 9BD*4-200F□ | 9BD*5-200F□ | - | - | - | B-150 |
| 104mm | 250W | - | - | 10BD*E-250F□-T | - | - | - | - | - | - | B-153 |
| | 300W | - | 10BD*D-300F□-T | - | - | - | - | - | 10BD*7-300F□-T | 10BD*8-300F□-T | B-156 |
| | 400W | - | - | - | - | - | - | 10BD*6-400F□-T | - | - | B-159 |

| Frame Size | Voltage / Output | Clutch & Brake Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | |
| 80mm | 15W | 8CID*1-15□ | 8CID*2-15□ | 8CID*E-15□ | 8CID*3-15□ | 8CID*4-15□ | 8CID*5-15□ | B-165 |
| | 25W | 8CID*1-25□ | 8CID*2-25□ | 8CID*E-25□ | 8CID*3-25□ | 8CID*4-25□ | 8CID*5-25□ | B-167 |
| 90mm | 40W | 9CID*1-40□ | 9CID*2-40□ | 9CID*E-40□ | 9CID*3-40□ | 9CID*4-40□ | 9CID*5-40□ | B-169 |
| | 60W | 9CID*1-60F2□ | 9CID*2-60F2□ | 9CID*E-60F2□ | 9CID*3-60F2□ | 9CID*4-60F2□ | 9CID*5-60F2□ | B-171 |
| | 90W | 9CID*1-90F2□ | 9CID*2-90F2□ | 9CID*E-90F2□ | 9CID*3-90F2□ | 9CID*4-90F2□ | 9CID*5-90F2□ | B-173 |
| | 120W | 9CID*1-120F2□ | 9CID*2-120F2□ | 9CID*E-120F2□ | 9CID*3-120F2□ | 9CID*4-120F2□ | 9CID*5-120F2□ | B-175 |

| Frame Size | Voltage / Output | Torque Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | |
| 60mm | 3W | 6TD*1-3□ | 6TD*2-3□ | 6TD*E-3□ | - | - | - | B-189 |
| 70mm | 6W | 7TD*1-6□ | 7TD*2-6□ | 7TD*E-6□ | - | - | - | B-191 |
| 80mm | 10W | 8TD*1-10□ | 8TD*2-10□ | 8TD*E-10□ | - | - | - | B-193 |
| 90mm | 20W | 9TD*1-20F2□ | 9TD*2-20F2□ | 9TD*E-20F2□ | - | - | - | B-195 |
| | 30W | 9TD*1-30F2□ | 9TD*2-30F2□ | 9TD*E-30F2□ | - | - | - | B-197 |
| | 40W | 9TD*1-40F2□ | 9TD*2-40F2□ | 9TD*E-40F2□ | - | - | - | B-200 |
| | 60W | 9TD*1-60F2□ | 9TD*2-60F2□ | 9TD*E-60F2□ | - | - | - | B-203 |

1. Enter the output shaft type of motor (G: Gear Type/D: D-Cut Type/K: Key Type) in the place * within the motor model name.
2. Enter the model type of attaching gearbox (G Type/P Type/H Type/W Type/WH Type/HC Type) in the box (□) within the motor model name.
3. When using terminal box type motors, '-T' is added to the end of the motor model name.
4. The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
5. 60mm motors are Impedance Protected Type.

| Frame Size | Voltage / Output | Speed Control Induction Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | |
| 60mm | 6W | 6SD*1-6□ | 6SD*2-6□ | 6SD*E-6□ | – | – | – | B-225 |
| 70mm | 6W | 7SD*1-6□ | 7SD*2-6□ | 7SD*E-6□ | – | – | – | B-227 |
| | 10W | 7SD*1-10□ | 7SD*2-10□ | 7SD*E-10□ | – | – | – | B-229 |
| | 15W | 7SD*1-15□ | 7SD*2-15□ | 7SD*E-15□ | – | – | – | B-231 |
| 80mm | 15W | 8SD*1-15□ | 8SD*2-15□ | 8SD*E-15□ | – | – | – | B-233 |
| | 25W | 8SD*1-25□ | 8SD*2-25□ | 8SD*E-25□ | – | – | – | B-236 |
| 90mm | 40W | 9SD*1-40□ | 9SD*2-40□ | 9SD*E-40□ | – | – | – | B-239 |
| | 60W | 9SD*1-60F2□ | 9SD*2-60F2□ | 9SD*E-60F2□ | – | – | – | B-242 |
| | 90W | 9SD*1-90F2□ | 9SD*2-90F2□ | 9SD*E-90F2□ | – | – | – | B-246 |
| | 120W | 9SD*1-120F2□ | 9SD*2-120F2□ | 9SD*E-120F2□ | – | – | – | B-250 |
| | 180W | 9SD*1-180F2□ | 9SD*2-180F2□ | 9SD*E-180F2□ | – | – | – | B-254 |

| Frame Size | Voltage / Output | Speed Control Reversible Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 50/60Hz | 5(L) 3Ø 415V~440V 50/60Hz | |
| 60mm | 6W | 6RD*1-6□ | 6RD*2-6□ | 6RD*E-6□ | – | – | – | B-259 |
| 70mm | 6W | 7SRD*1-6□ | 7SRD*2-6□ | 7SRD*E-6□ | – | – | – | B-261 |
| | 10W | 7SRD*1-10□ | 7SRD*2-10□ | 7SRD*E-10□ | – | – | – | B-263 |
| | 15W | 7SRD*1-15□ | 7SRD*2-15□ | 7SRD*E-15□ | – | – | – | B-265 |
| 80mm | 15W | 8SRD*1-15□ | 8SRD*2-15□ | 8SRD*E-15□ | – | – | – | B-267 |
| | 25W | 8SRD*1-25□ | 8SRD*2-25□ | 8SRD*E-25□ | – | – | – | B-270 |
| 90mm | 40W | 9SRD*1-40□ | 9SRD*2-40□ | 9SRD*E-40□ | – | – | – | B-273 |
| | 60W | 9SRD*1-60F2□ | 9SRD*2-60F2□ | 9SRD*E-60F2□ | – | – | – | B-276 |
| | 90W | 9SRD*1-90F2□ | 9SRD*2-90F2□ | 9SRD*E-90F2□ | – | – | – | B-280 |
| | 120W | 9SRD*1-120F2□ | 9SRD*2-120F2□ | 9SRD*E-120F2□ | – | – | – | B-284 |

| Frame Size | Voltage / Output | Speed Control Brake Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | 1(A) 1Ø 110V 60Hz | 2(D) 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | 3(G) 3Ø 220V 50/60Hz | 4(K) 3Ø 380V~400V 60/70Hz | 5(L) 3Ø 415V~440V 50/60Hz | |
| 60mm | 6W | 6SBD*1-6□ | 6SBD*2-6□ | 6SBD*E-6□ | – | – | – | B-289 |
| 70mm | 6W | 7SBD*1-6□ | 7SBD*2-6□ | 7SBD*E-6□ | – | – | – | B-291 |
| | 10W | 7SBD*1-10□ | 7SBD*2-10□ | 7SBD*E-10□ | – | – | – | B-293 |
| | 15W | 7SBD*1-15□ | 7SBD*2-15□ | 7SBD*E-15□ | – | – | – | B-295 |
| 80mm | 15W | 8SBD*1-15□ | 8SBD*2-15□ | 8SBD*E-15□ | – | – | – | B-297 |
| | 25W | 8SBD*1-25□ | 8SBD*2-25□ | 8SBD*E-25□ | – | – | – | B-300 |
| 90mm | 40W | 9SBD*1-40□ | 9SBD*2-40□ | 9SBD*E-40□ | – | – | – | B-303 |
| | 60W | 9SBD*1-60F2□ | 9SBD*2-60F2□ | 9SBD*E-60F2□ | – | – | – | B-306 |
| | 90W | 9SBD*1-90F2□ | 9SBD*2-90F2□ | 9SBD*E-90F2□ | – | – | – | B-310 |
| | 120W | 9SBD*1-120F2□ | 9SBD*2-120F2□ | 9SBD*E-120F2□ | – | – | – | B-314 |
| | 180W | 9SBD*1-180F2□ | 9SBD*2-180F2□ | 9SBD*E-180F2□ | – | – | – | B-318 |

1. Enter the output shaft type of motor (G: Gear Type/D: D-Cut Type/K: Key Type) in the place * within the motor model name.
2. Enter the model type of attaching gearbox (G Type/P Type/H Type/W Type/WH Type/HC Type) in the box (□) within the motor model name.
3. When using terminal box type motors, '-T' is added to the end of the motor model name.
4. The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
5. 60mm motors are Impedance Protected Type.

# A Information

## Products Lineup

### AC Motors

| Frame Size | Voltage / Output | Speed Control Clutch & Brake Motor | | | | | | Page |
|---|---|---|---|---|---|---|---|---|
| | | A 1Ø 110V 60Hz | D 1Ø 220V 60Hz | E 1Ø 220~240V 50Hz | G 3Ø 220V 50/60Hz | K 3Ø 380V~400V 50/60Hz | L 3Ø 415V~440V 50/60Hz | |
| 80mm | 15W | 8CSD*1-15□ | 8CSD*2-15□ | 8CSD*E-15□ | – | – | – | B-323 |
| | 25W | 8CSD*1-25□ | 8CSD*2-25□ | 8CSD*E-25□ | – | – | – | B-325 |
| 90mm | 40W | 9CSD*1-40□ | 9CSD*2-40□ | 9CSD*E-40□ | – | – | – | B-327 |
| | 60W | 9CSD*1-60F2□ | 9CSD*2-60F2□ | 9CSD*E-60F2□ | – | – | – | B-329 |
| | 90W | 9CSD*1-90F2□ | 9CSD*2-90F2□ | 9CSD*E-90F2□ | – | – | – | B-331 |
| | 120W | 9CSD*1-120F2□ | 9CSD*2-120F2□ | 9CSD*E-120F2□ | – | – | – | B-333 |

1. Enter the output shaft type of motor (G: Gear Type/D: D-Cut Type/K: Key Type) in the place * within the motor model name.
2. Enter the model type of attaching gearbox (G Type/P Type/H Type/W Type/WH Type/HC Type) in the box (□) within the motor model name.
3. When using terminal box type motors, '-T' is added to the end of the motor model name.
4. The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
5. 60mm motors are Impedance Protected Type.

### DSY Classified Table

| Induction Motor | 3Φ 220V 50/60Hz | 3Φ 380V~440V 50/60Hz | 3Φ 440V 50/60Hz | Page |
|---|---|---|---|---|
| 100W | ○ | ○ | ○ | B-341 |
| 200W | ○ | ○ | ○ | B-343 |
| 400W | ○ | ○ | ○ | B-345 |

| Brake Motor | 3Φ 220V 50/60Hz | 3Φ 380V~440V 50/60Hz | 3Φ 440V 50/60Hz | Page |
|---|---|---|---|---|
| 100W | ○ | ○ | ○ | B-341 |
| 200W | ○ | ○ | ○ | B-343 |
| 400W | ○ | ○ | ○ | B-345 |

## DC Motors

| Frame Size | Voltage / Output | DC Motors | | | Page |
|---|---|---|---|---|---|
| | | DC 12V | DC 24V | DC 90V | |
| 60mm | 15W | 6DC*12-15-30 | 6DC*24-15-30 | 6DC*90-15-30 | C-05 |
| 80mm | 25W | 8DC*12-25-30 | 8DC*24-25-30 | 8DC*90-25-30 | C-07 |
| | 40W | 8DC*12-40-30 | 8DC*24-40-30 | 8DC*90-40-30 | C-09 |
| 90mm | 60W | 9DC*12-60-30 | 9DC*24-60-30 | 9DC*90-60-30 | C-11 |
| | 90W | 9DC*12-90-30 | 9DC*24-90-30 | 9DC*90-90-30 | C-13 |
| | 120W | 9DC*12-120-30 | 9DC*24-120-30 | 9DC*90-120-30 | C-15 |
| | 200W | 9DC*12-200-30 | 9DC*24-200-30 | 9DC*90-200-30 | C-17 |

1. Enter the output shaft type of motor in the place * within the motor model name.
(D: D-Cut Type/K: Key Type/G: Shaft for G Type Gearbox/P: Shaft for P Type Gearbox/W: Shaft for W Type Gearbox)

## Gearbox

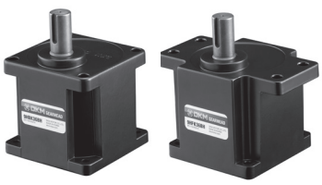
| Type | | Frame Size | Gearbox Model | Gear Reduction Ratio | Page |
|---|---|---|---|---|---|
| Parallel Gearbox | G Type | 60mm | 6GBD□MH | 3/3.6/5/6/7.5/9/10/12.5/15/18/20/25/30/36/40/50/60/75/90/100/120/150/180/200/250 | D-07 |
| | | 70mm | 7GBK□BMH | 3/3.6/6/7.5/9/12.5/15/18/20/25/30/36/40/50/60/75/90/100/120/150/180/200 | D-07 |
| | | 80mm | 8GBK□BMH | 3/3.6/5/6/7.5/9/12.5/15/18/20/25/30/36/40/50/60/75/90/100/120/150/180/200/250/300/360 | D-08 |
| | | 90mm | 9GBK□BMH | 2/3/3.6/5/6/7.5/9/10/12.5/15/18/20/25/30/36/40/50/60/75/90/100/120/150/180/200 | D-09 |
| | P Type | 90mm | 9PBK□BH/ 9PFK□BH | 2/3/3.6/5/6/7.5/9/10/12.5/15/18/20/25/30/36/40/50/60/75/90/100/120/150/180/200 | D-10 |
| | H Type | 90mm | 9HBK□BH/ 9HFK□BH | 3/3.6/6/9/10/12.5/15/18/20/25/30/36/40/50/60/75/90/100/120/150/180/200 | D-11 |
| | U Type | 104mm | 10UBK□BH | 3/5/9/10/15/20/25/30/40/50/60/90/100/120/150/180 | D-12 |
| Right Angle Gearbox | W Type | 80mm | 8WD□BL/ □BR/ □BRL | 10/12/15/18/25/30/36/50/60 | D-13 |
| | | 90mm | 9WD□BL/ □BR/ □BRL | 10/12/15/18/25/30/36/50/60 | D-13 |
| | WH Type | 90mm | 9WHD□-030 | 5/7.5/10/15/20/25/30/40/50/60/80 | D-14 |
| | | 90mm | 9WHD□-040 | 50/60/80/100 | D-15 |
| | | 104mm | 10WHD□-040 | 5/7.5/10/15/20/25/30/40 | D-15 |
| | HC Type | 90mm | 9HC□□ | 15/20/25/30/40/50/60/80/100/120/160/200/225/240 | D-16 |
| | | 104mm | 10HC□□ | 15/20/25/30/40/50/60/80/100/120/160/200/225/240 | D-16 |
| Inter-decimal Gearbox | XD Type | 80mm | 8XD10□□ | 10 | D-18 |
| | | 90mm | 9XD10□□ | 10 | D-18 |

1. Enter the gear ratio in the box (□) within the gearbox model name.

# A Information

## General Information

### A guide to combinations of gearboxes and motors

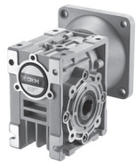
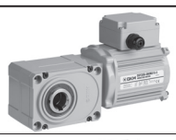
| Type | | Model (□ : Ratio) | Product Picture | Gear Ratio(n :1) |
|---|---|---|---|---|
| Parallel Gearbox | G type (General type) | 6GBD□ MH(BH) | | 3 / 3.6 / 5 / 6 / 7.5 / 9 / 10 / 12.5 / 15 / 18 |
| | | | | 20 / 25 / 30 / 36 / 40 |
| | | | | 50 / 60 / 75 / 90 / 100 / 120 / 150 / 180 / 200 / 250 |
| | | 7GBK□ BMH(BH) | | 3 / 3.6 / 5 / 6 / 7.5 / 9 / 10 / 12.5 / 15 / 18 |
| | | | | 20 / 25 / 30 / 36 / 40 |
| | | | | 50 / 60 / 75 / 90 / 100 / 120 / 150 / 180 / 200 |
| | | 8GBK□ BMH(BH) | | 3 / 3.6 / 5 / 6 / 7.5 / 9 / 10 / 12.5 / 15 / 18 |
| | | | | 20 / 25 / 30 |
| | | | | 36 / 40 |
| | | | | 50 / 60 / 75 / 90 / 100 / 120 / 150 / 180 |
| | | | | 200 / 250 / 300 / 360 |
| | | 9GBK□ BMH(BH) | | 2 / 3 / 3.6 / 5 / 6 / 7.5 / 9 / 10 / 12.5 / 15 / 18 |
| | | | | 20 / 25 / 30 |
| | | | | 36 / 40 |
| | | | | 50 / 60 / 75 / 90 / 100 / 120 / 150 / 180 / 200 |
| | PB type (Powerful Box type) & PF type (Powerful Flange type) | 9PBK□BH 9PFK□BH | | 2 / 3 / 3.6 / 5 / 6 / 7.5 / 9 / 10 |
| | | | | 12.5 / 15 / 18 / 20 |
| | | | | 25 / 30 / 36 / 40 / 50 / 60 |
| | | | | 75 / 90 / 100 / 120 / 150 / 180 / 200 |
| | HB type (High Powerful Box type) & HF type (High Powerful Flange type) | 9HBK□BH 9HFK□BH |  | 3 / 3.6 / 5 / 6 / 7.5 / 9 / 10 |
| | | | | 12.5 / 15 / 18 / 20 |
| | | | | 25 / 30 / 36 / 40 / 50 / 60 |
| | | | | 75 / 90 / 100 / 120 / 150 / 180 / 200 |
| | UB type (High Powerful Box type) | 10UBK□BH | | 3 / 5 / 9 |
| | | | | 10 / 15 |
| | | | | 20 / 25 / 30 / 40 / 50 / 60 |
| | | | | 90 / 100 / 120 / 150 / 180 |

| | Max. torque and Shaft Diameter | Load | Attachable Inter-decimal Gearbox | Applicable Motor | Output | Separability of Products |
|---|---|---|---|---|---|---|
| | Max. 30kgfcm Permissible Torque (Ø8 shaft) | For uniform loads Service Factor 1.0 | – | Induction / Reversible / Brake / Torque / Speed Control Motor | 3~6W | Separable |
| | Max. 50kgfcm Permissible Torque (Ø10 shaft) | For uniform loads Service Factor 1.0 | – | Induction / Reversible / Brake / Torque / Speed Control Motor | 6~15W | |
| | Max. 80kgfcm Permissible Torque (Ø10 shaft) | For uniform loads Service Factor 1.0 | 8XD10GG | Induction / Reversible / Brake / Torque / Speed Control / Clutch Brake Motor | 15~40W | |
| | Max. 100kgfcm Permissible Torque (Ø12 shaft) | For uniform loads Service Factor 1.0 | 9XD10GG | Induction / Reversible / Brake / Torque / Speed Control / Clutch Brake Motor | 40W | |
| | Max. 200kgfcm Permissible Torque (Ø15 shaft) | For uniform loads Service Factor 1.0 | 9XD10□P | Induction / Reversible / Brake / Torque / Speed Control / Clutch Brake Motor | 40~120W | |
| | Max. 300kgfcm Permissible Torque (Ø18 shaft) | For uniform loads Service Factor 1.0 | 9XD10□H | Induction / Reversible / Brake / Torque / Speed Control / Clutch Brake Motor | 60~200W | |
| | Max. 400kgfcm Permissible Torque (Ø22 shaft) | For uniform loads Service Factor 1.0 | – | Induction / Brake Motor | 250~400W | |

# A Information

## I General Information

### A guide to combinations of gearboxes and motors

| Type | | Model (□ : Gear ratio) | Product Picture | Gear Ratio (n :1) |
|---|---|---|---|---|
| Right Angle Gearbox | Worm Solid Gearbox | 8/9 WD□ BL/ BR/ BRL | | 10 / 12 / 15 / 18 / 25 / 30 / 36 / 50 / 60 |
| | Worm Hollow Gearbox | 9WHD□–030 |  | 5 / 7.5 / 10 / 15 / 20 / 25 / 30 / 40 / 50 / 60 / 80 |
| | | 9WHD□–040 | | 50 / 60 / 80 / 100 |
| | | 10WHD□–040 | | 5 / 7.5 / 10 / 15 / 20 / 25 / 30 / 40 |
| | Helicross Gearbox | 9HC□–□ | | 15 / 20 / 25 / 30 |
| | | | | 40 / 50 / 60 |
| | | | | 80 / 100 / 120 |
| | | | | 160 / 200 / 225 / 240 |
| | | 10HC□–□ | | 15 / 20 / 25 / 30 |
| | | | | 40 / 50 / 60 |
| | | | | 80 / 100 / 120 |
| | | | | 160 / 200 / 225 / 240 |
| | DSY Series (Induction Motor) | DSY□□–□ N010–□ | | 7.5 / 10 / 12.5 / 15 / 20 / 25 / 30 |
| | | | | 40 / 50 |
| | | | | 60 |
| | | DSY□□–□ N020–□ | | 7.5 / 10 / 12.5 / 15 / 20 / 25 / 30 |
| | | | | 40 / 50 |
| | | | | 60 |
| | | DSY□□–□ N040–□ | | 7.5 / 10 / 12.5 / 15 / 20 / 25 / 30 |
| | | | | 40 / 50 |
| | | | | 60 |
| | DSY Series (Brake Motor) | DSY□□–□ B010–□ |  | 7.5 / 10 / 12.5 / 15 / 20 / 25 / 30 |
| | | | | 40 / 50 |
| | | | | 60 |
| | | DSY□□–□ B020–□ | | 7.5 / 10 / 12.5 / 15 / 20 / 25 / 30 |
| | | | | 40 / 50 |
| | | | | 60 |
| | | DSY□□–□ B040–□ | | 7.5 / 10 / 12.5 / 15 / 20 / 25 / 30 |
| | | | | 40 / 50 |
| | | | | 60 |

| | Max torque and Shaft Diameter | Load | Attachable Inter-decimal Gearbox | Applicable Motor | Output | Separability of Products |
|---|---|---|---|---|---|---|
| | Max. 150kgfcm Ø10, Ø15 | For uniform loads Service Factor 1.0 | 8XD10GW 9XD10GW | Induction / Reversible / Brake / Speed Control Motor | 15~40W 40~120W | Separable |
| | Max. 210kgfcm Ø14 | | 9XD10□Z | | 60~200W | |
| | Max. 395kgfcm Ø18 | | 9XD10□Z | | 150~200W | |
| | | | – | | 250~400W | |
| | Max. 1800kgfcm Permissible Torque (90W~200W Ø25 Shaft) | For medium impact load Service Factor 1.4 | – | Induction / Brake / Speed Control Motor | 90~200W | |
| | Max. 3000kgfcm Permissible Torque (250W~400W Ø30 Shaft) | For medium impact load Service Factor 1.4 | – | Induction / Brake Motor | 250~400W | |
| | Max. 330kgfcm Permissible Torque (DSY Series 100W Ø20, Ø25 Shaft) | For uniform loads Service Factor 1.0 | – | Induction / Brake Motor | 100W | Non-separable |
| | Max. 650kgfcm Permissible Torque (DSY Series 200W Ø20, Ø25 Shaft) | For uniform loads Service Factor 1.0 | – | | 200W | |
| | Max. 1300kgfcm Permissible Torque (DSY Series 400W Ø25, Ø30 Shaft) | For uniform loads Service Factor 1.0 | – | | 400W | |
| | Max. 330kgfcm Permissible Torque (DSY Series 100W Ø20, Ø25 Shaft) | For uniform loads Service Factor 1.0 | – | | 100W | |
| | Max. 650kgfcm Permissible Torque (DSY Series 200W Ø20, Ø25 Shaft) | For uniform loads Service Factor 1.0 | – | | 200W | |
| | Max. 1300kgfcm Permissible Torque (DSY Series 400W Ø25, Ø30 Shaft) | For uniform loads Service Factor 1.0 | – | | 400W | |

# A Information

## General Information

### How to Read Motor Specifications

| Model<br>9IDG*-40□(-T): Gear Type Shaft<br>9IDD*-40(-T): D-Cut Type Shaft<br>9IDK*-40(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ❶ W | V | Hz | | | kgfcm ❷ | N.m | ❸ Speed r/min | ❹ Current A | ❺ Torque kgfcm | N.m | μF / VAC |
| Lead Wire Type | Terminal Box Type | | | | | | | | | | | | |
| 9IDG1(A)-40□ | 9IDG1(A)-40□-T | 40 | 1ø110 | 60 | 4 | Cont. | 2.60 | 0.260 | 1600 | 0.80 | 2.44 | 0.244 | 10.0 / 250 |
| 9IDG2(D)-40□ | 9IDG2(D)-40□-T | 40 | 1ø220 | 60 | 4 | Cont. | 2.60 | 0.260 | 1600 | 0.45 | 2.44 | 0.244 | 2.5 / 450 |
| 9IDGE-40□ | 9IDGE-40□-T | 40 | 1ø220 | 50 | 4 | Cont. | 2.10 | 0.210 | 1300 | 0.33 | 3.00 | 0.300 | 2.0 / 450 |
| | | | 1ø240 | | | | 2.60 | 0.260 | | 0.36 | 3.00 | 0.300 | |
| 9IDG3(G)-40□ | 9IDG3(G)-40□-T | 40 | 3ø220 | 50 | 4 | Cont. | 9.90 | 0.990 | 1350 | 0.33 | 2.89 | 0.289 | – |
| | | | | 60 | | | 7.90 | 0.790 | 1600 | 0.31 | 2.44 | 0.244 | |
| | | | 3ø230 | 50 | 4 | Cont. | 10.80 | 1.080 | 1350 | 0.35 | 2.89 | 0.289 | |
| | | | | 60 | | | 8.50 | 0.850 | 1600 | 0.33 | 2.44 | 0.244 | |
| 9IDG4(K)-40□ | 9IDG4(K)-40□-T | 40 | 3ø380 | 50 | 4 | Cont. | 10.20 | 1.020 | 1350 | 0.19 | 2.89 | 0.289 | – |
| | | | | 60 | | | 8.00 | 0.800 | 1600 | 0.18 | 2.44 | 0.244 | |
| | | | 3ø400 | 50 | 4 | Cont. | 11.10 | 1.110 | 1350 | 0.20 | 2.89 | 0.289 | |
| | | | | 60 | | | 8.80 | 0.880 | 1600 | 0.19 | 2.44 | 0.244 | |
| 9IDG5(L)-40□ | 9IDG5(L)-40□-T | 40 | 3ø415 | 50 | 4 | Cont. | 10.00 | 1.000 | 1350 | 0.17 | 2.89 | 0.289 | – |
| | | | | 60 | | | 8.00 | 0.800 | 1600 | 0.16 | 2.44 | 0.244 | |
| | | | 3ø 440 | 50 | 4 | Cont. | 11.10 | 1.110 | 1350 | 0.18 | 2.89 | 0.289 | |
| | | | | 60 | | | 8.90 | 0.890 | 1600 | 0.17 | 2.44 | 0.244 | |

① Output: The amount of work that can be performed in a given period of time. It can be used as a criterion for motor capability.
② Starting Torque: This term refers to the torque generated the instant the motor starts. If the motor is subjected to a friction load smaller than this torque, it will operate.
③ Speed: This is the speed of the motor when the motor is producing rated torque.
④ Current: Rated current is the current flowing in an electrical device when it is supplied with the rated voltage and delivers its rated power.
⑤ Torque: This is the torque created when the motor is operating most efficiently. Though the maximum torque is far greater, rated torque should, from the standpoint of utility, be the highest torque.

### How to Read Gearbox Specifications

#### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 12.5 | 15 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ❷ r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 144 | 120 | 100 | 90 |
| 9IDG□-60FP | 9PBK□BH<br>9PFK□BH | ❶ kgfcm | 7.0 | 10.5 | 12.5 | 17.4 | 20.9 | 26.1 | 31.4 | 39.4 | 47.3 | 56.7 | 57.1 |
| | | N.m | 0.68 | 1.02 | 1.23 | 1.71 | 2.05 | 2.56 | 3.07 | 3.86 | 4.63 | 5.56 | 5.60 |
| 9IDG□-60FH | 9HBK□BH<br>9HFK□BH | kgfcm | – | 10.5 | 12.5 | – | 20.9 | – | 31.4 | 39.4 | 47.3 | 56.7 | 57.1 |
| | | N.m | | 1.02 | 1.23 | | 2.05 | | 3.07 | 3.86 | 4.63 | 5.56 | 5.60 |

| Motor Model | Gearbox Model | Gear Ratio | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| 9IDG□-60FP | 9PBK□BH<br>9PFK□BH | kgfcm | 71.4 | 85.7 | 102.8 | 114.2 | 142.8 | 171.4 | 192.2 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | | N.m | 7.00 | 8.40 | 10.08 | 11.20 | 13.99 | 16.79 | 18.83 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9IDG□-60FH | 9HBK□BH<br>9HFK□BH | kgfcm | ❸ 71.4 | 85.7 | 102.8 | – | 142.8 | 171.4 | 192.2 | 230.6 | 256.2 | 300.0 | 300.0 | 300.0 |
| | | N.m | 7.00 | 8.40 | 10.08 | | 13.99 | 16.79 | 18.83 | 22.60 | 25.11 | 29.40 | 29.40 | 29.40 |

① Permissible Torque: It refers to the value of load torque driven by the gearbox's output shaft. Each value is shown for the corresponding gear ratio.
② r/min: This refers to the speed of rotation at the gearbox output shaft. Speed(r/min), depending on gear ratio, is shown in the permissible torque table when the gearbox is attached. The speed is calculated by dividing the motor's synchronous speed (50Hz :1,500r/ min, 60Hz: 1,800r/min) by the gear ratio. The actual speed, according to the load condition, is 2~20% less than the displayed value.
③ Direction of Rotation: This refers to the direction of rotation viewed from the output shaft. The colored background areas indicate rotation in the same direction as the motor shaft, while the others rotate in the opposite direction. The direction of gearbox shaft rotation may differ from motor shaft rotation depending on the gear ratio of the gearbox.

# Permissible Load Inertia

'J' and 'GD²' are used to describe the moment of inertia. J is generally called inertia and has the same value of physical moment of inertia in SI units. Unit is in kg · m². GD² is called 'flywheel effect' and generally used in industrial application with gravitational systems of units. Unit is in kgf · m² or kgf · cm². A relation between J and GD² is described as:
J = GD²/ 4

## Calculation of Permissible Load Inertia

When the load inertia J connected to the gearbox is large, frequent start of the motor or electromagnetic brake generates a large torque. If this impact is excessive, it may damage the gearbox and the motor. Inertia varies with types of the load and the inertia of the load significantly affects life expectancy of gear and electromagnetic brake. When applying the braking force by using the electromagnetic brake, do not exceed a permissible load inertia for specific models.

- Permissible Load Inertia at Motor Shaft

$$J_M = J_G \times \frac{1}{i^2}$$

$J_G$ : Permissible load inertia at the gearbox output shaft (kg · cm²)
$J_M$ : Permissible load inertia at the motor output shaft (kg · cm²)
i : Gear reduction ratio (e.g. 5 if the ratio is 1/5)

- Permissible Load Inertia Moment at the Gearbox Output Shaft

$J_G$ = JM x i² (when reduction ratio is 1/3 to 1/50)
$J_G$ = JM x 2500 (when reduction ratio is 1/60 or larger)

$J_G$ : Permissible load inertia moment at the gearbox output shaft (kg · cm²)
$J_M$ : Permissible load inertia at the motor shaft (kg · cm²)
i : Gear reduction ratio (e.g. 5 if the ratio is 1/5)

## Motor and Load Inertia

The equation of motion is described as below when the inertia loads is driven by the motor.

$$T = J\alpha = J \cdot \frac{d\omega}{dt} = \frac{GD^2}{4} \cdot \frac{d\omega}{dt} = \frac{2\pi}{60} \cdot \frac{GD^2}{4} \cdot \frac{dn}{dt}$$

T : Torque (N · m)
J : Moment of inertia (kg · m²)
ω : Angular speed (rad/s)
t : Time (s)
n : Rotational speed (r/s)
GD² : Flywheel Effect (GD² = 4J)
g : Gravitational acceleration (9.8m/s²)
α : Angular acceleration (rad/s²)

– In the case of an induction motor, the torque generated at the start varies depending on the speed. Therefore, an average acceleration torque is generally used, which is the average torque from the starting to the constant speed.
– A necessary average acceleration torque TA to accelerate the load inertia of J(kg · cm²)/ GD²(kgf · cm²) up to a speed n(min^–1) in time t(s) can be obtained by the following formula.

- SI Units

$$T_A = \frac{J}{9.55 \times 10^4} \times \frac{N}{t} \quad (N \cdot m)$$

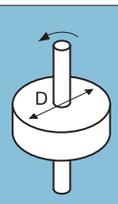
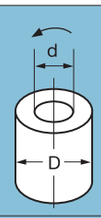
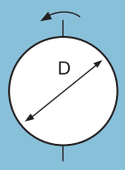
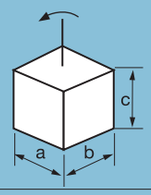
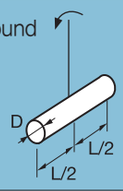
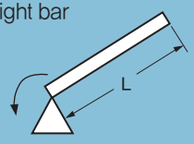
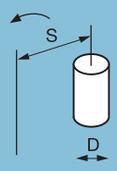
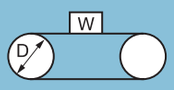
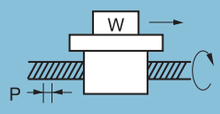
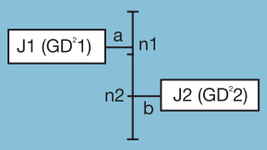
- Gravitational System of Units

$$T_A = \frac{GD^2}{3750000} \times \frac{N}{t} \quad (kgf \cdot cm)$$

# A Information

## General Information

### Calculation of Flywheel Effect (GD²)

| | | | |
|---|---|---|---|
| Disk  | $GD^2 = \frac{1}{2} WD^2$ (kgf·cm²)<br>W: Weight [kgf]<br>D: Outer diameter [cm] | Hollow Circular Cylinder  | $GD^2 = \frac{1}{2} W(D^2 + d^2)$ (kgf·cm²)<br>W: Weight [kgf]<br>D: Outer diameter [cm]<br>d : Inner diameter[cm] |
| Sphere  | $GD^2 = \frac{2}{5} WD^2$ (kgf·cm²)<br>W : Weight [kgf]<br>D : Diameter [cm] | Cube  | $GD^2 = \frac{1}{3} W(a^2 + b^2)$ (kgf·cm²)<br>W: Weight [kgf]<br>a,b : Length of side [cm] |
| Slender Round Bar  | $GD^2 = \frac{3D^2+4L^2}{12}$ (kgf·cm²)<br>W : Weight [kgf]<br>D : Diameter [cm]<br>L : Length [cm] | Straight bar  | $GD^2 = \frac{4}{3} WL^2$ (kgf·cm²)<br>W: Weight [kgf]<br>L: Length [cm] |
| Discrete Shaft  | $GD^2 = \frac{1}{2} WD^2 + 4WS^2$ (kgf·cm²)<br>W : Weight [kgf]<br>D : Outer diameter [cm]<br>S : Turning radius [cm] | Horizontal Linear Motion  | $GD^2 = WD^2$ (kgf·cm²)<br>W : Weight on the conveyor [kgf]<br>D : Drum diameter [cm]<br>* GD² of drum is not included |
| Ball Screw  | $GD^2 = GD^2_A + \frac{W \cdot P^2}{\pi^2}$ (kgf·cm²)<br>W: Weight [kgf]<br>P: Lead of feed screw [cm]<br>GD²A: GD² of feed screw [kgf · cm²] | Reducer  | Equivalent all GD²on axis 'a'<br>$GD^2 = GD^2_1 + (\frac{n2}{n1})^2 GD^2_2$ (kgf·cm²)<br>n1: Speed of axis 'a' [min^−1]<br>n2: Speed of axis 'b' [min^−1]<br>GD²1: GD² of axis 'a' [kgf · cm²]<br>GD²2: GD² of axis 'b' [kgf · cm²] |

### Permissible Load Inertia at Motor Shaft

| Frame Size | Output | Permissible Load Inertia GD² (kgfcm²) |
|---|---|---|
| □60mm | 6W | 0.25 |
| □70mm | 15W | 0.56 |
| □80mm | 15W, 25W | 1.24 |
| □90mm | 40W | 3.00 |
| | 60W | 4.40 |
| | 90W, 120W, 150W | 4.40 |
| | 180W, 200W | 6.00 |
| □104mm | 250W, 300W | 8.40 |
| | 400W | 11.00 |

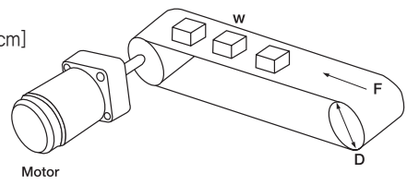
# Calculation Method of Motor Capacity

To calculate the load torque, refer to the figures below for reference. According to this, the proper size of a motor for your equipment is determined. Be advised that basic calculation methods refer to below. For sizing a motor, consider the acceleration time at the start, needed power, safety index in design, and the influence of voltage fluctuation.

## Belt Conveyor Application

$$T = \frac{1}{2} D(F+\mu W) \ [kgf \cdot cm]$$

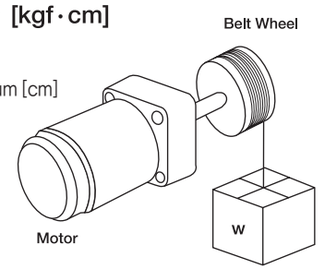
D : Diameter of drum [cm]
W : Weight [kgf]
μ : Friction coefficient
F : External force [kgf]




## Hoisting Application

$$T = \frac{1}{2} D \cdot W \ [kgf \cdot cm]$$

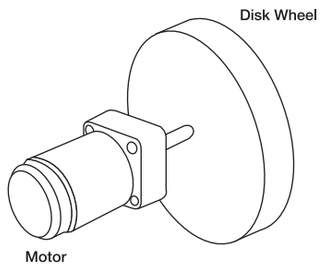
D : Diameter of drum [cm]
W : Weight [kgf]




## Flywheel Application

$$T = \frac{GD^2}{37500} \times \frac{N}{t} \ [kgf \cdot cm]$$

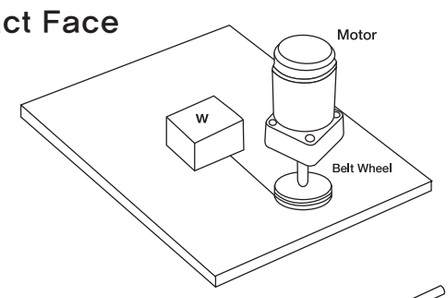
N : Revolutions per minute [r/min]
$GD^2$ : Flywheel effect [kgf • $cm^2$]
t : Time [sec]




## Horizontal Travel on Contact Face

$$T = \frac{1}{2} D \cdot \mu W \ [kgf \cdot cm]$$

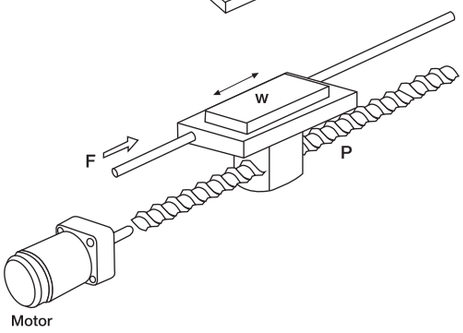
W : Weight [kgf]
μ : Friction coefficient
D : Diameter of wheel




## Ball Screw Drive

$$T = \frac{1}{2\pi} P \cdot (F+\mu W) \ [kgf \cdot cm]$$

F : External force [kgf]
W : Weight[kgf]
μ : Friction coefficient of sliding surfaces [approx. 0.05 to 0.2)]
P : LEAD of Ball Screw [cm]



# A Information

## Terminology

### Motor

#### Alternating Current (AC)

– Alternating current (AC) is an electric current which periodically reverses the direction and changes its magnitude at regular intervals or cycles. The alternating current follows a sine waveform where the voltage increases steadily from zero, rising to the maximum positive peak voltage. It then reverses and drops down through zero into negative direction until it reaches the negative peak value, which is equal to the positive in magnitude and only different in polarity.

#### Direct Current (DC)

– DC is the current coming from the power supply that positive (+) pole and negative (–) pole is constant all the times, and the direction is invariable and the size is also constant.
– DC generation device includes various rectifiers such as battery, storage battery, and DC generator.

#### Frequency (F)

– Frequency is the times of vibration that AC repeats for 1 second.
– The unit is Hertz (Hz).
– In Korea, 60Hz frequency is employed as a standard which means that the direction of current changes from (+) to (–) 60 times for a minute.

#### Rating

– This means what is designed to be suitable for the requirements specified in the motor and when satisfied with the use conditions, the use limit is called 'rating'.
– This designates voltage, current, r/min, frequency which determine the use limit for output. We call it rated output, rated voltage, rated current, rated r/min, and rated frequency.
– Rating includes continuous rating, short–time rating and intermittent periodic rating.

- **Continuous Rating**

– When using the motor continuously under the designated condition, if it is available to use it continuously without exceeding the prescribed temperature rising and general condition, it is called 'continuous rating'. (e.g. Induction Motor)

- **Short–time Rating**

– When operating the motor during the prescribed time under the designated condition, if it is available to use without exceeding the prescribed temperature rising and general condition, it is called 'short–time rating'. (e.g. Reversible Motor)

- **Intermittent Periodic Rating**

– When repeating run and stop periodically with constant load under the prescribed condition, if it is available not to exceed general condition such as the prescribed temperature rising etc., it is called 'intermittent periodic rating'.

#### Output

– Output is the thing which can be done by a motor during the unit time and it is determined by r/min x torque. The value of rated output is indicated as follows:

$$\text{Output [W]} = 1.027 \times T \times N$$

T: Torque [kgf · m]

N: Number of rotation [r/min]

– **Rated output:** It indicates the output which is generated continuously under the condition of designated voltage and frequency. This designated voltage and frequency is called the rated voltage and rated frequency. At this time, the rated output is called generally the output of the motor.

## Torque and r/min

– Torque is the rotational force that can cause an object to rotate about an axis. The unit is [gf · cm] or [kgf · cm] and SI unit is N.m.
– The torque of 1kgf · cm is the rotational force when 1kg of force is applied to the right angle from the point of outer circle which radius of the body of revolution is 1cm.

### ● Starting Torque (① in figure 1)

– Staring torque is the minimum torque required to get it moving from a standstill and is called 'locked rotor torque' or 'starting torque'.
– If the torque is not greater than the starting torque, then the motor will not be able to get the system moving.

### ● Stalling Torque (② in figure 1)

– The maximum torque of the motor.
– The load more than maximum torque during operation causes the motor to rotate slower or makes it stop rotating.

### ● Rated Torque (③ in figure 1)

– It is the torque when the motor rotates at the rated r/min.
– The torque when the rated output is generated continuously by applying the rated voltage to the motor.

### ● Synchronous Speed (④ in figure 1)

– It is r/min which is determined by the power frequency and the number of poles of a motor.

NS=120f/P [r/min]

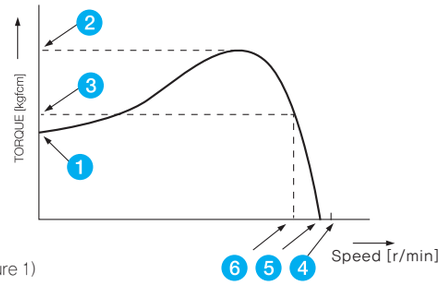
NS : Synchronous r/min [r/min]
P : The number of poles
f : Power frequency [Hz]
120 : Constant number
r/min : Revolution per minute

### ● No Load Speed (⑤ in figure 1)

– It is r/min when the motor runs without applying any load to motor output shaft.
In this case, the motor runs about 20~80[r/min] lower than synchronous r/min in Induction Motor and Reversible Motor.

### ● Rated Speed (⑥ in figure 1)

– It is r/min when rated r/min is generated by applying the rated load to the motor, and the most ideal r/min in use.




(Figure 1)

**SPEED – TORQUE Characteristics**

1. Starting Torque
2. Stalling Torque
3. Rated Torque
4. Synchronous Speed
5. No Load Speed
6. Rated Speed

## Slippage

– Slippage can be described in the following formula as one of the rotational speed.

$$S = \frac{NS - N}{NS} \quad \text{or} \quad N = NS \times (1 - S)$$

NS : Synchronous r/min [r/min]
N : r/min at Temporary load [r/min]
S : SLIP

For example, if induction motor with 4 pole and 60Hz operates at SLIP S=0.1,

$$N = \frac{120 \times 60}{4} \times (1 - 0.1) = 1620 \text{[r/min]}$$

### Permissible Torque

– It is the maximum torque available when operating the motor. This is limited by rated torque of the motor, temperature rising, and the strength of the gearbox to combine.

### Overrun

– This is the angle (r/min) that indicates the excessive revolution of a motor from the moment of power shutdown to the stop.

## Gearbox

### Gear Reduction Ratio

– Gearbox is a speed converter using a gear and an instrumental device to reduce the r/min of motor into the required r/min and get bigger torque. Gear reduction ratio is a rate in which the gearbox decelerates the motor's r/min.
– There are two groups of gear reduction ratio; one is for 3, 5, 7.5, 12.5, 15··· and the other is 3.6, 6, 9, 15, 18··· which are 1.2 times the previous group so that you can obtain approx. the same output speed for both 50Hz and 60Hz.

### Maximum Permissible Torque

– It is maximum load torque which can be applied to the output shaft of the gearbox.
– It is determined by the mechanical strength such as materials of a gearbox, gear tooth and bearing and the size of gearbox as well as the gear reduction ratio.

### Transmission efficiency

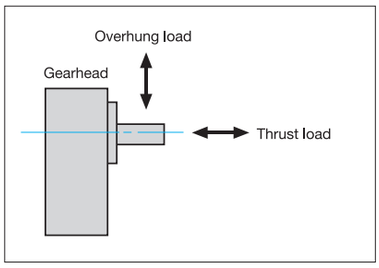
– It is an efficiency with which motor torque is increased by a gearbox and described in %.
– It is determined by the bearing, friction of the gear tooth and resistance of lubricating oil.
– In general, this efficiency is approx. 90% per stage of the gear. If gear ratio is higher, the number of gear will increase and the efficiency rate will decrease.

### Service Factor

– It is a coefficient which is used to estimate the service life of the gearbox.
– This value is generally derived from experience and based on type of the load and operating conditions.
– The life of a gearbox during particular application is estimated by dividing the standard life expectancy by the service factor.

### Overhung Load

– Overhung load is defined as a load applied to the output shaft in the right-angle direction.
– Maximum value of the overhung load which is applicable to the shaft is called as 'permissible overhung load'. This value varies depending on the type of a gearbox and the distance from the edge of the shaft.




### Thrust Load

– The thrust load is defined as a load applied to the output shaft in the axial direction.
– Maximum value of the thrust load which is applicable to the shaft is called as 'permissible thrust load'. This value varies depending on the type of a gearbox.

## Caution for Using

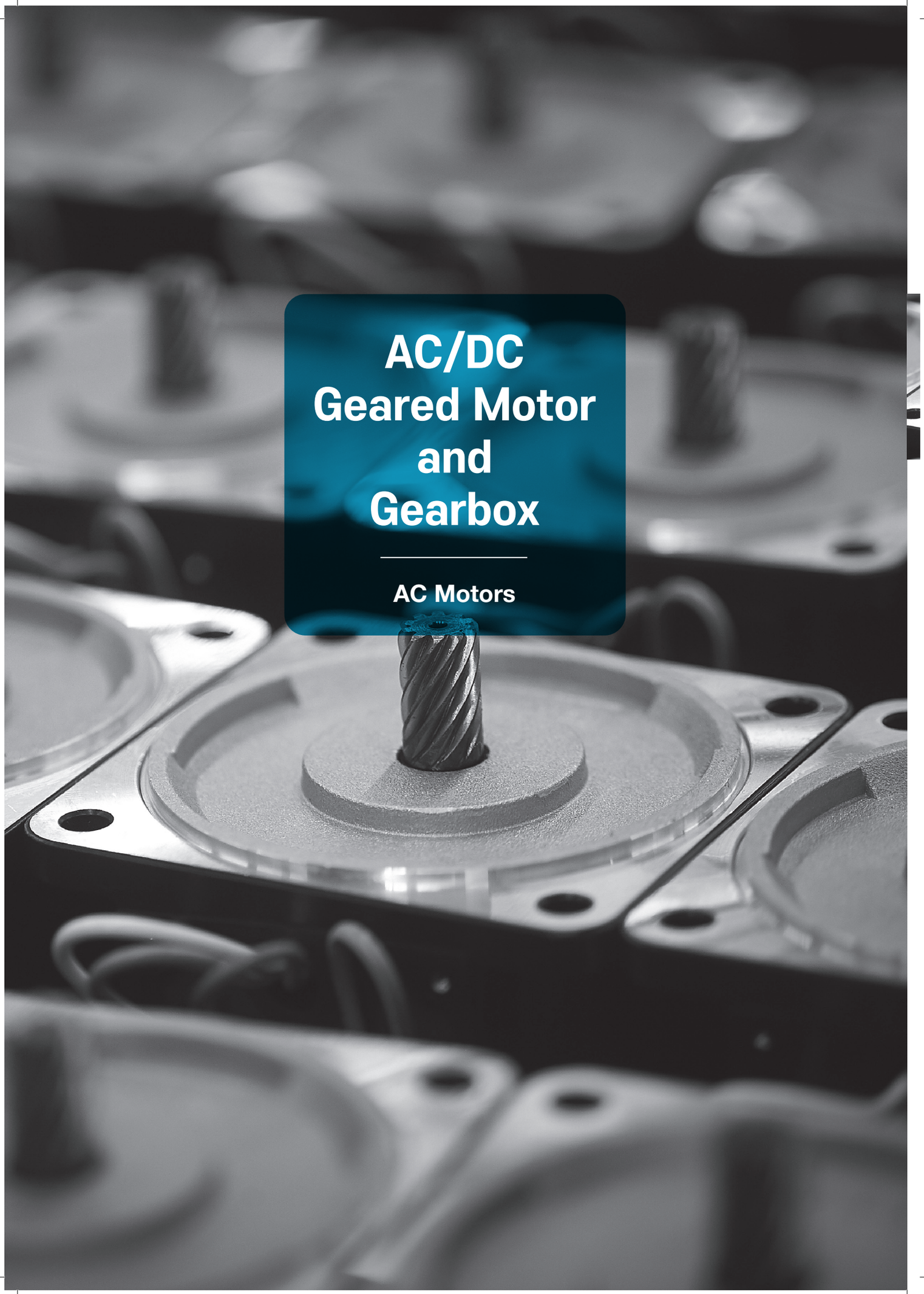
Before using the motors and gearboxes, read safety precautions carefully and use the products properly.
For the suggestions on using them, they are classified as caution and warning

### ⚠ Caution

- Make sure to check whether the things are what you ordered. If you install the other thing, there may occur the injury and/or the fire.
- The motor and the controlling unit should be used only by the designated compounding. If not, the fire may occur.
- The motor should be used after it is fixed tightly. If not, the injury and/or the damage of the unit may occur.
- Make sure to check the rotating direction before connecting the machine. If not, the injury and/or the damage of the unit may occur.
- When using the ac motors for machines and beginning to operate, do it in a state of emergency stop.
- Use products only according to the specification of the motor and controlling unit. If not, there will be danger of fire, electric shock, injury and/or damage of the unit.
- Do not place any obstacle around the motor which can disturb circulation of air. It could be cause of overheating or breakdown.
- Do not put the fingers or things into the outlet of the unit. There may be electric shock, injury or danger of fire.
- Do not operate with the wet hands. The electric shock may occur.
- In case of moving a motor, do not catch the output shaft, connecting part, or lead wire. There may be the injury by the drop.
- Do not touch the rotating part (output shaft, cooling fan) in running. It could be cause of injury.
- Do not touch the side of the motor output shaft (key way, cutting part) with the naked hands. It could be cause of injury.
- Make sure to install the overload device because the protection device is not attached to the motor. It is desirable to install other protection devices other than overload protection device to prevent fire.
- Electromagnetic brake is not for holding the load certainly and it doesn't hold the load if thermal protector (TP) works. So if the safety brake is needed, install another braking system.
- If there are abnormal cases, turn off the power at once. If not, there will be the electric shock, injury and the damage.
- In operating and right after the operation, do not touch the controlling device by your hands or body. The fire will occur.
- When you scrap motors, please disassemble and treat them as industrial waste.

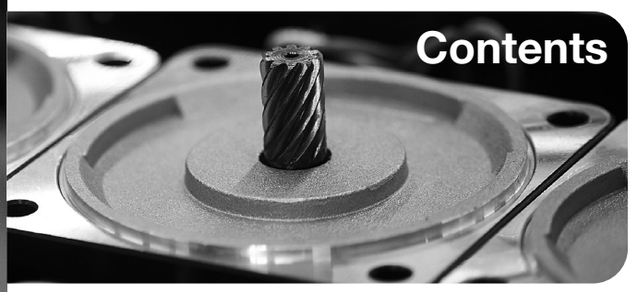
### ⚠ Warning

- Never put around the explosive atmosphere, gas to be burnt, corrosive air, the location to be wet, and combustibles. If not, there will be the electric shock and the fire.
- Do not move, connect or inspect with an electric current flowing. Turn off the power and work.
- Make sure to connect a motor and a speed controller based on the connection diagram. If not, there will be the electric shock and the fire.
- The power cable and the lead wire should not be bent, pulled and inserted by force. If not, the electric shock and the fire may occur.
- In case that the motor and controlling unit are attached to the machine, never touch with your hands or connect with the earth. Otherwise, an electric shock can occur.
- Never operate in the state of exposing the flowing current. If not, the electric shock can occur.
- In case of interruption of electric power and wiring the protection of overheat, please turn off the power. When motors are working continuously, there may be injury and damage of the unit.
- Within the 30 seconds after the power off, do not touch the output terminal of the controlling unit. If not, the electric shock may occur because of the residual volts.



# AC/DC Geared Motor and Gearbox

AC Motors



# Contents


## A Information

A-01 Product Coding System
A-04 Product Lineup
A-09 Combination table
A-13 General Information
A-17 Terminology
A-20 Caution for Use

## B AC Motors

B-01 Technical Data of AC Motor
B-06 Induction Motor
B-58 2 Pole Motor
B-76 Reversible Motor
B-112 Brake Motor
B-162 Clutch & Brake Motor
B-178 Torque Motor
B-206 Speed Control System
- B-209 Speed Controller FX3000
- B-213 Speed Controller DX3000
- B-217 Speed Controller DSA
- B-219 Speed Controller DSKM
- B-224 Speed Control Induction Motor
- B-258 Speed Control Reversible Motor
- B-288 Speed Control Brake Motor
- B-322 Speed Control Clutch & Brake Motor

B-336 DSY Series

## C DC Motors

C-01 Technical Data of DC Motor
C-04 DC Motor
C-20 Speed Controller DSD-90

## D Gearboxes

D-01 Technical Data of Gearbox
D-07 Parallel Gearbox
D-13 Right-Angle Gearbox
D-18 Inter-decimal Gearbox

## E Options

E-01 Mounting Bracket
E-03 Extension Cable
E-04 Output Flange / Output Shaft

# B AC Motors

## Technical Data of AC Motor

## Definition of AC Motor

AC Motor is an electric motor to get a driving force for rotation or straight movement by converting the electrical energy into mechanical energy and the light-weighted motor which enables to select the model suitable for the load, has less noise and vibration as well as no exhaust pollution.

## Features of DKM AC Motor

DKM AC geared motor was developed first in Korea in 1987 and has been used in a good reputation throughout the whole areas of domestic/overseas industry up to now.Our AC geared motor has various and wide range of options which satisfies various electrical requirements from all over the world.

### Various and Abundant Models

- There are various and abundant models in frame size covering □60/70/80/90/104mm such as Induction Motor, 2 Pole Motor, Reversible Motor, E.M. Brake Motor, Clutch & Brake Motor, Torque Motor and Speed Control Motor.
- For use voltage, we have AC motors which have various types of voltage levels covering all areas in the globe: 100V 50/60Hz(Japan), 200V 50/60Hz(Japan), 110V 60Hz(Taiwan), 220V 60Hz(Korea, Taiwan), 115V 60Hz(North America), 230V 50Hz(Europe, Oceania), 220/240V 50Hz(South-East Asia)

### Low Noise and Low Vibration

- Due to the enhancement of quality standard such as places and conditions for motors to use, the low noise and low vibration are required.
- To satisfy these conditions, we employed high precision of gear processing and skiving cutting method and we are making a rotor which is the root cause of vibration by verifying with balance machine for low noise and low vibration.

### Easy to Use

- Easy and safe to use as motors and gearboxes are sold according to the requirements so that they can be designed and manufactured optimally.
- It is easy to drive to get a driving force by connecting a capacitor to the commercial power available to be used anywhere and anytime. As the capacitor is not needed for three phase power, it is available to get a driving force easily by connecting three phase power to the motor directly.

### Just-In-Time System

- Just-In-Time system is available in DKM Motor Co., Ltd. for the best delivery system. DKM realized user's satisfaction with the world best delivery system.

## Types of AC Motors

### Classification by Power

- AC Motor: A motor that is operated by AC power. For example, inductive motor, synchronous motor, AC commutator motor, etc.

  1) Single Phase Motor
  - It works by using a single-phase power supply which is used mainly in homes, offices, stores and small non-industrial companies.
  - As power itself does not make a motor rotate, a capacitor needs to be connected to auxiliary coil to start.

  2) Three Phase Motor
  - Three phase motor stands for electrical power and it is consisted of three electrical sources with a phase offset of 120° in voltage.
  - Connect the power to the motor to start and the rotor will start to run easily.
  - The efficiency of a motor is high and the starting torque is relatively big.

- DC Motor: A motor that rotates by supplying the direct current to the armature. The torque generated by placing the coil between magnetic poles N and S and applying the current to this coil rotates the motor. Whenever this coil passes the neutral shaft, it turns the direction of current reversely and rotates continuously.

## Classification by Function

- **Motor with Constant Speed**

  **1) Induction Motor:** An induction motor is a type of AC motor where power is supplied to the rotor by means of electromagnetic induction. These motors are widely used in industrial drives, particularly polyphase induction motors, because they are rugged and have no brushes. Their speed is determined by the frequency of the supply current, so they are most widely used in constant-speed applications, although variable speed versions, using variable frequency drives are becoming more common.

  **2) Reversible Motor:** The reversible motor is a kind of induction motor and also has the same characteristic in any direction such as a forward direction and backward direction. In principle, it is the same as an induction motor but there is no relation between the main coil and auxiliary coil like a general induction motor in order to stand frequent normal/reverse rotation and get a big starting torque.

- **Brake Motor**

  It is a motor embedded with fail-safe electromagnetic brake. Perfect braking enables to get a staying power.
  Brake runs only when the power is shutdown, so this is suitable for safe use.
  ※ DKM has 'A Type' electronic brake motor which runs when the power is applied. (Customized specification)

- **Clutch & Brake Motor**

  DKM Clutch&Brake motor is equipped with Clutch&Brake mechanism and only available to be used with a gearbox. As the continuously rotating induction motor and Clutch&Brake are combined, this can be used for frequent start/stop, position control, index operation and relative value feeding operation, etc.

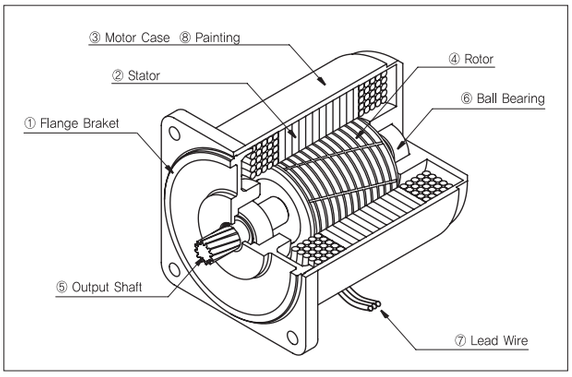
- **Torque Motor**

  DKM torque motor has big starting torque and sloping characteristics. It runs safely over the whole area of rotation speed-torque characteristics. (Torque is highest at zero speed and decreases steadily with increasing speed.) With these characteristics, this can be used for more application as a winding or tension motor.

- **Speed Control Motor**

  Users can easily set and adjust the motor speed. There are four types of speed controllers for AC speed control motors. Select the best system depending on your application.

## Structure of AC Motor




**① Flange Bracket**
Die-cast aluminum bracket is press-fitted into the motor case. The flange and the housing are a single body type which plays an important part to attach the motor alone or combine the gearbox.

**② Stator**
This is comprised of a stator core made from laminated silicon/steel plates, a polyester-coated copper coil and insulation film. The roles are to generate magnetic field, form the rotation and run the rotor.

**③ Motor Case**
Die-cast aluminum with a machined finish inside

**④ Rotor**
It is comprised of laminated silicon/steel plates with die-cast aluminum. Rotor plays the part to change the electric energy to mechanical energy and transfer it to outside through shaft.

**⑤ Output Shaft**
There are a D-cut type shaft and a key type shaft which are for use by the motor itself and a gear type shaft(pinion shaft) which is for attaching a gearbox. It is made of S45C with a machined finish.

**⑥ Ball Bearing :** It ensures that the rotor remains at the right position for the reliability and fast rotational motion.

**⑦ Lead Wire :** Lead wires with heat-resistant polyethylene coating

**⑧ Painting :** Motor housing is finished with acrylic resin and melamine resin.

# Temperature Rise of AC Motor

## Temperature Rise

- In operation of a motor, the loss inside of the motor is changed to heat causing the motor's temperature to rise.
  - Induction Motor (for continuous duty) reaches the saturation point of temperature rise in about two or three hours of operation and temperature stabilizes.
  - Reversible Motor (30 minutes rating) reaches their limit of temperature rise in about 30 minutes of operation. If operation continues as it is, the temperature will increase further.

## Measuring Temperature Rise

- DKM uses the following methods for temperature measurement and for the determination of a motor's allowable temperature rise.
  - Thermometer Method: The temperature rise at which the temperature rise becomes saturated during motor operation is measured by using a thermometer or thermocouple installed in the center of the motor case. The temperature rise is the difference between the ambient temperature and measured temperature during motor operation.
  - Resistance Method: This is the method of measuring the winding temperature according to the change in resistance value. The motor's winding resistance and ambient temperature are measured by using a resistance meter and thermostat.

## Overheating Protection Device

- If a running motor locks due to overload, the input current increases due to any reason or the ambient temperature increases suddenly, the motor's temperature rises abruptly. If this state continues, the insulation performance may deteriorate and, in extreme cases, it may cause a fire. To avoid this case, DKM employs the following overheating protection devices.
  - Thermal Protector (TP)
    DKM installs the thermal protector for overheating protection of the motor. The TP employs a bimetal contact with pure silver used in the contacts. Pure silver has the lowest electrical resistance of all materials and has thermal conductivity second only to copper. (Operating Temperature: Open 120℃±5℃ / Close 90 ℃±5℃)
  - Impedance Protection
    Impedance-protected motor has higher impedance in the motor windings so although the motor locks, the increase in input current is minimized and temperature will not rise.

## Insulation Class

- DKM Motor's insulation class is B class. Insulation class is according to heat-resistance class. According to JIS C4003(IEC60085), it is defined as below. It is also available to use other materials for some particular insulation class according to operating conditions or user's request. (Customized specification)

| Insulation Class | Max. Permissible Temp. |
|---|---|
| Y | 90℃ |
| A | 105℃ |
| E | 120℃ |
| B | 130℃ |
| F | 155℃ |
| H | 180℃ |

## FAN

- It is available to attach two kinds of fan to the DKM's motor: 'General Fan (F type)' and 'Powerful Fan (F2 type)'. General fan is attached to a motor shaft rotating at the same speed with motor shaft speed(1,800r/min in 60Hz, 1,500r/min in 50Hz). Powerful fan makes powerful cooling performance and rotates in high speed regardless of motor shaft speed (It rotates 3200r/min at 60Hz and exhibits the effect of a 10℃ higher temperature reduction than when using the general fan.).
  DKM employs general fans to the motors with continuous speed. Also, the continuous-speed motor with a powerful fan could be customized. But in case of using a speed control motor, the powerful fan is employed basically because there is little cooling effect in low speed if general fan is employed.

## Equipment Protection Structure (IP Code)

- The IP code is one of the equipment protection structures and indicates the dust-resistance and waterproofing degrees of protection for the equipment.
- The code consists of the first number and the second number.

I P □ □

Second Number : Waterproof Protection Class
First Number : Dustproof Protection Class

- "□" is used when one of the two protection classes is not specified in the name. (e.g. IP□5, IP4□)
- Meanings of IP code and testing conditions are as below;

1) The Classification of Dustproof

| IP Code | Protection Specifications for Dustproof | |
|---|---|---|
| First Number | Protection Level | Test Condition |
| IP0□ | None | None |
| IP1□ | Protection against approach by hands | Solid objects with a diameter of 50mm or more do not enter. |
| IP2□ | Protection against approach by fingers | Solid objects with a diameter of 12mm or more do not enter. |
| IP3□ | Protection against tips of tools, etc. | Solid objects with a diameter of 2.5mm or more do not enter. |
| IP4□ | Protection against ingress of wires, etc. | Solid objects with a diameter of 1.0mm or more do not enter. |
| IP5□ | Protection against powdery dust | Powdery dust that may inhibit normal operation does not enter. |
| IP6□ | Completely dustproof design | Cannot be penetrated by powdery dust. |

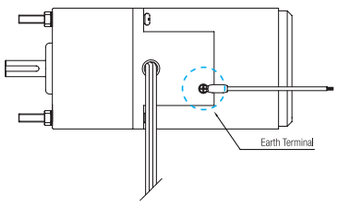
2) The Classification of Waterproof

| IP Code | Protection Specifications for Waterproof | |
|---|---|---|
| Second Number | Protection Level | Test Condition |
| IP□0 | None | None |
| IP□1 | Protection against vertically falling water drops | Water drops at a rate of 3 to 5L/min. for 10 minutes from a height of 200mm |
| IP□2 | Protection against vertically falling water drops when enclosure tilted up to 15° | Water drops at a rate of 3 to 5L/min. for 10 minutes from directions within 15° from a height of 200mm |
| IP□3 | Protection against spraying water 60° from vertical | Sprayed water at a rate of 10L/min. for 10 minutes from directions within 60° from a height of 200mm |
| IP□4 | Protection against water sprayed from all directions | Sprayed water at a rate of 10L/min. for 10 minutes from all directions at a distance of 300 to 500mm |
| IP□5 | Protection against water jet from all directions | Sprayed water jet of 30kPa at a rate of 12.5L/min. for 3 minutes from all directions at a distance of 3m |
| IP□6 | Protection against strong water jet such as ocean waves | Sprayed water jet of 100kPa at a rate of 100L/min. for 3 minutes from all directions at a distance of 3m |
| IP□7 | Usable after immersion in water under specified conditions | Immersion to a depth of 1m for 30 minutes |
| IP□8 | Usable under water | Determined through cooperation between a user and a manufacturer. |

## Earth Method

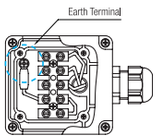
### Lead Wire Type

- As shown in the figure, connect the earth wire to the earth hole in the side of the motor. Screw the earth wire to the earth hole. (Sequence: earth hole → washer → earth wire → screw bolt)




### Terminal Box Type

- Connect the earth wire to the earth terminal in the terminal box.



# Induction Motor

## Index


| | |
|---|---|
| Outline of Induction Motor | B-07 |
| Induction Motor 6W (□60mm) | B-09 |
| Induction Motor 6W (□70mm) | B-11 |
| Induction Motor 10W (□70mm) | B-13 |
| Induction Motor 15W (□70mm) | B-15 |
| Induction Motor 15W (□80mm) | B-17 |
| Induction Motor 25W (□80mm) | B-20 |
| Induction Motor 40W (□80mm) | B-23 |
| Induction Motor 40W (□90mm) | B-25 |
| Induction Motor 60W (□90mm) | B-28 |
| Induction Motor 90W (□90mm) | B-32 |
| Induction Motor 120W (□90mm) | B-36 |
| Induction Motor 150W (□90mm) | B-40 |
| Induction Motor 180W (□90mm) | B-43 |
| Induction Motor 200W (□90mm) | B-46 |
| Induction Motor 250W (□104mm) | B-49 |
| Induction Motor 300W (□104mm) | B-52 |
| Induction Motor 400W (□104mm) | B-55 |

# B AC Motors

## Outline of Induction Motor

### Suitable for Unidirectional Continuous Operation

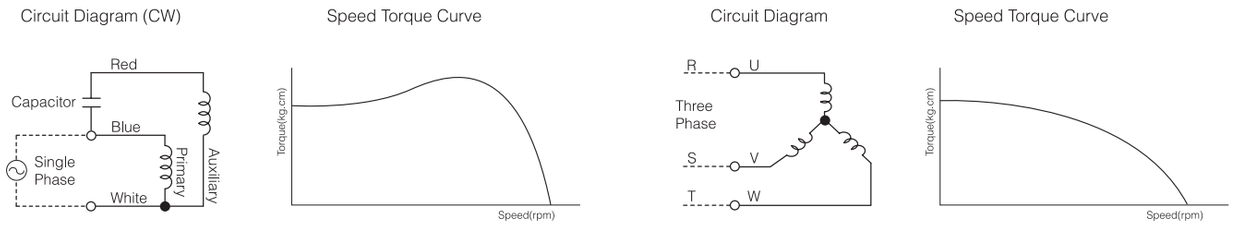
- Induction motors are suitable for unidirectional continuous operation such as conveyor belt system.

### Single Phase Run

- For the running of a single phase motor, please use the capacitor complying with the capacity of the motor. For a single phase induction motor, it is not possible to reverse the direction within a short time during operation. So stop the motor first and change the direction next. (Figure 1)

### Three Phase Run

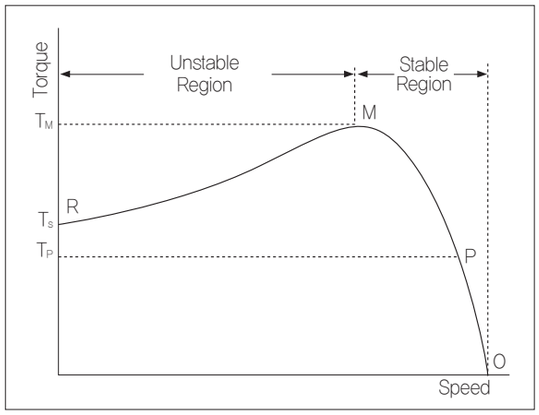
- Three phase induction motor has relatively high starting torque compared to single phase motor and has high reliability because it can be directly operated by a three phase power source.(Figure2)




(Figure 1) (Figure 2)

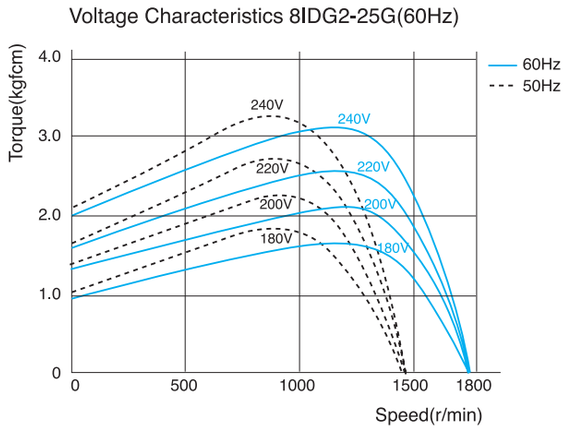
### The Relation between Speed and Torque

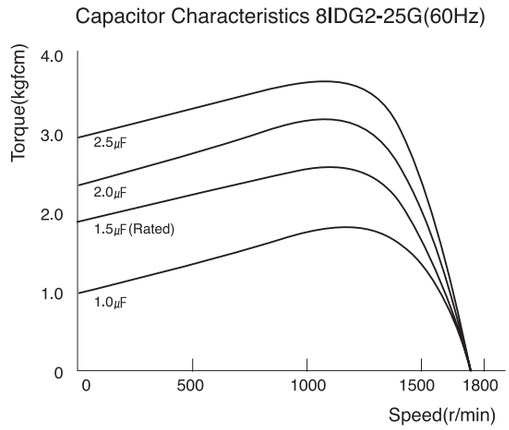
- In a condition of constant power voltage, the relation between speed and torque is like next figure. Under the condition of no-load, the number of rotation is roughly same as the number of synchronous rotation. But if the load increases, the number of rotation decreases and approaches to the speed (r/min) indicated by the point P where the torque Tp horizontally meets the load curve. When the load further increases and reaches the point M, the motor stops at the point R because the motor no longer generates further torque. Therefore, the leg R-M is referred to as an unstable zone and the leg O-M is a stable zone for operation.




### Features of Voltage and Capacitor

- Generally the torque of induction motor changes proportionate to twice the voltage and it also changes according to the capacity of the capacitor. If the capacity of the capacitor increases, the starting torque and rated torque will increase. But if the capacity increases by over twice, the rated torque decreases and starting torque do not increase.
- If the induction motor has a slight lack of torque, it is possible to increase the torque by increasing the voltage or the capacity of the capacitor to continue the operation. But please be informed that in this case the loss input of the motor increases and the temperature rises rapidly. However, if the motor must be run with insufficient torque, take measures to let the motor release heat as much as possible by installing separate fan as an example and operate the motor while keeping the temperature of the motor's housing below 90℃.



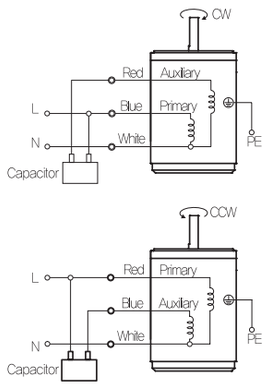

## General Specifications

| Item | Specification |
|---|---|
| Insulation Resistance | 100MΩ or more when DC500V MEGA is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity. |
| Dielectric Strength | Sufficient to withstand 1.5KV at 50Hz and 60Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity. |
| Temperature Rise | Temperature rise of windings are 80℃ or less measured by the resistance change method after rated motor operation with connecting a gearbox or equivalent heat radiation plate. |
| Insulation Class | Class B [130℃] |
| Overheat Protection | Operating temperature (Built-in thermal protector type motor): Open 120℃±5℃, Close 90℃±5℃ |
| Ambient Temperature | -10℃~+40℃ (Three phase 220VAC: -10℃~+50℃) |
| Ambient Humidity | 85% maximum |

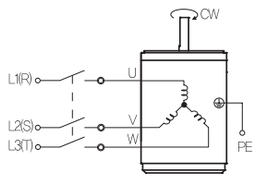
## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|

**[Single Phase]**

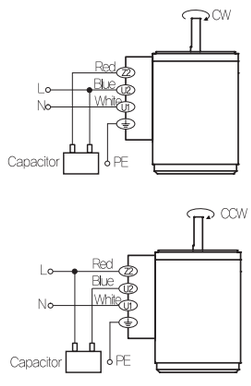



**[Three Phase]**

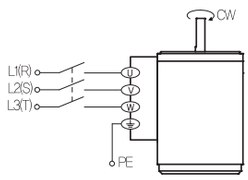



* **CCW Direction:** Change any two connections among R, S and T.

**[Single Phase]**




**[Three Phase]**




* **CCW Direction:** Change any two connections among R, S and T.

# B AC Motors

## Induction Motor 6W(□60mm)

# 6W Induction Motor 6W(□60mm)

## Motor Specification

| Model<br>6IDG*-6G(-T): Gear Type Shaft<br>6IDD*-6(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 6IDG1(A)-6G | 6IDG1(A)-6G-T | 6 | 1ø 110 | 60 | 4 | Cont. | 0.54 | 0.054 | 1500 | 0.21 | 0.38 | 0.038 | 2.5 / 250 |
| 6IDG2(D)-6G | 6IDG2(D)-6G-T | 6 | 1ø 220 | 60 | 4 | Cont. | 0.60 | 0.060 | 1550 | 0.11 | 0.38 | 0.038 | 0.7 / 450 |
| 6IDGE-6G | 6IDGE-6G-T | 6 | 1ø 220 | 50 | 4 | Cont. | 0.55 | 0.055 | 1200 | 0.09 | 0.49 | 0.049 | 0.6 / 450 |
| | | | 1ø 240 | | | | 0.66 | 0.066 | | 0.10 | 0.49 | 0.049 | |
| 6IDG3(G)-6G | 6IDG3(G)-6G-T | 6 | 3ø 220 | 50 | 4 | Cont. | 1.20 | 0.120 | 1250 | 0.13 | 0.47 | 0.047 | – |
| | | | | 60 | | | 0.90 | 0.090 | 1550 | 0.11 | 0.38 | 0.038 | |
| | | | 3ø 230 | 50 | 4 | Cont. | 1.30 | 0.130 | 1250 | 0.14 | 0.47 | 0.047 | |
| | | | | 60 | | | 1.00 | 0.100 | 1550 | 0.12 | 0.38 | 0.038 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
3) Impedance Protected Type

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| 6IDG*-6G | 6GBD□MH | kgfcm | 0.9 | 1.1 | 1.5 | 1.8 | 2.3 | 2.7 | 3.1 | 3.8 | 4.6 | 5.5 | 5.5 | 6.9 | 8.3 | 9.9 | 11.0 | 12.4 | 14.9 | 18.7 | 22.4 | 24.9 | 30.0 | 30.0 | 30.0 |
| | | N.m | 0.09 | 0.11 | 0.15 | 0.18 | 0.22 | 0.27 | 0.30 | 0.37 | 0.45 | 0.54 | 0.54 | 0.67 | 0.81 | 0.97 | 1.08 | 1.22 | 1.46 | 1.83 | 2.19 | 2.44 | 2.94 | 2.94 | 2.94 |

| Motor Model | Gearbox Model | Gear Ratio | 200 | 250 |
|---|---|---|---|---|
| | | r/min | 9 | 7.2 |
| 6IDG*-6G | 6GBD□MH | kgfcm | 30.0 | 30.0 |
| | | N.m | 2.94 | 2.94 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 |
| 6IDG*-6G | 6GBD□MH | kgfcm | 1.2 | 1.4 | 2.0 | 2.4 | 3.0 | 3.6 | 3.9 | 4.9 | 5.9 | 7.1 | 7.1 | 8.9 | 10.7 | 12.8 | 14.2 | 16.1 | 19.3 | 24.1 | 28.9 | 30.0 | 30.0 | 30.0 | 30.0 |
| | | N.m | 0.12 | 0.14 | 0.19 | 0.23 | 0.29 | 0.35 | 0.39 | 0.48 | 0.58 | 0.70 | 0.70 | 0.87 | 1.05 | 1.25 | 1.39 | 1.57 | 1.89 | 2.36 | 2.83 | 2.94 | 2.94 | 2.94 | 2.94 |

| Motor Model | Gearbox Model | Gear Ratio | 200 | 250 |
|---|---|---|---|---|
| | | r/min | 7.5 | 6 |
| 6IDG*-6G | 6GBD□MH | kgfcm | 30.0 | 30.0 |
| | | N.m | 2.94 | 2.94 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

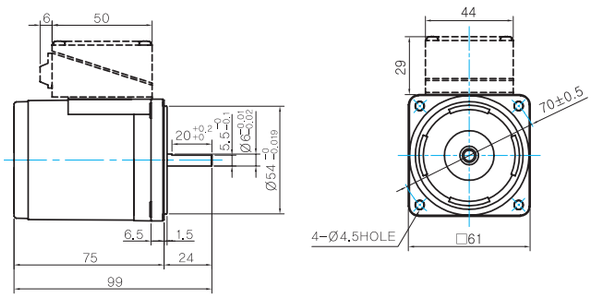
## Motor Images

| 6IDD□-6 | 6IDD□-6-T | 6IDG□-6G+6GBD□MH |
|---|---|---|
| | | |

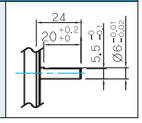
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 6IDD□-6(-T) (NO FAN)



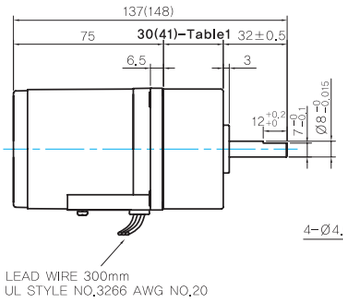

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

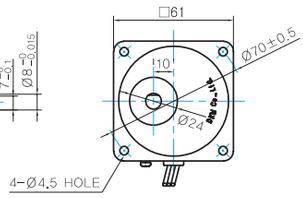
## GEARED MOTOR

## G TYPE GEARBOX

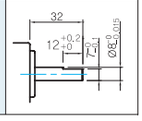
● MOTOR MODEL:
6IDG□-6G (NO FAN)




● GEARBOX MODEL:
6GBD□MH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

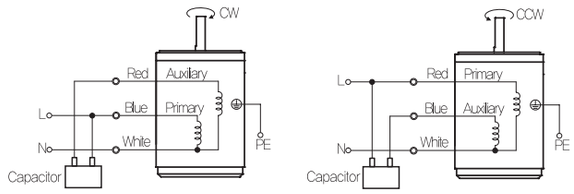
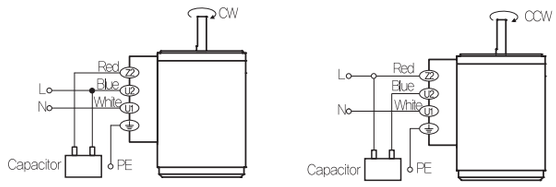
● 30(41)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 30 | 6GBD3MH - 6GBD18MH |
| 41 | 6GBD20MH - 6GBD250MH |

## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 0.7 |
| GEAR BOX | 6GBD3MH ~ 6GBD18MH | 0.3 |
| | 6GBD20MH ~ 6GBD40MH | 0.32 |
| | 6GBD50MH ~ 6GBD250MH | 0.34 |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

## Induction Motor 6W(□70mm)

# 6W Induction Motor 6W(□70mm)

## Motor Specification

| Model<br>7IDG*-6G(-T): Gear Type Shaft<br>7IDD*-6(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 7IDG1(A)-6G | 7IDG1(A)-6G-T | 6 | 1ø 110 | 60 | 4 | Cont. | 0.50 | 0.050 | 1600 | 0.26 | 0.37 | 0.037 | 2.5 / 250 |
| 7IDG2(D)-6G | 7IDG2(D)-6G-T | 6 | 1ø 220 | 60 | 4 | Cont. | 0.52 | 0.052 | 1600 | 0.15 | 0.37 | 0.037 | 0.7 / 450 |
| 7IDGE-6G | 7IDGE-6G-T | 6 | 1ø 220 | 50 | 4 | Cont. | 0.56 | 0.056 | 1300 | 0.14 | 0.45 | 0.045 | 0.7 / 450 |
| | | | 1ø 240 | | | | 0.67 | 0.067 | | 0.16 | 0.45 | 0.045 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| 7IDG*-6G | 7GBK□ BMH | kgfcm | 0.9 | 1.1 | 1.5 | 1.8 | 2.2 | 2.7 | 3.0 | 3.7 | 4.4 | 5.3 | 5.3 | 6.7 | 8.0 | 9.6 | 10.7 | 12.1 | 14.5 | 18.1 | 21.7 | 24.1 | 28.9 | 36.2 | 43.4 |
| | | N.m | 0.09 | 0.10 | 0.14 | 0.17 | 0.22 | 0.26 | 0.29 | 0.36 | 0.43 | 0.52 | 0.52 | 0.65 | 0.78 | 0.94 | 1.05 | 1.18 | 1.42 | 1.77 | 2.13 | 2.36 | 2.83 | 3.54 | 4.25 |

| Motor Model | Gearbox Model | Gear Ratio | 200 |
|---|---|---|---|
| | | r/min | 9 |
| 7IDG*-6G | 7GBK□ BMH | kgfcm | 48.2 |
| | | N.m | 4.72 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 |
| 7IDG*-6G | 7GBK□ BMH | kgfcm | 1.1 | 1.3 | 1.8 | 2.2 | 2.7 | 3.3 | 3.6 | 4.6 | 5.5 | 6.6 | 6.6 | 8.2 | 9.8 | 11.8 | 13.1 | 14.8 | 17.8 | 22.3 | 26.7 | 29.7 | 35.6 | 44.5 | 50.0 |
| | | N.m | 0.107 | 0.13 | 0.18 | 0.21 | 0.27 | 0.32 | 0.36 | 0.45 | 0.54 | 0.64 | 0.64 | 0.80 | 0.96 | 1.16 | 1.29 | 1.45 | 1.74 | 2.18 | 2.62 | 2.91 | 3.49 | 4.36 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 200 |
|---|---|---|---|
| | | r/min | 7.5 |
| 7IDG*-6G | 7GBK□ BMH | kgfcm | 50.0 |
| | | N.m | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

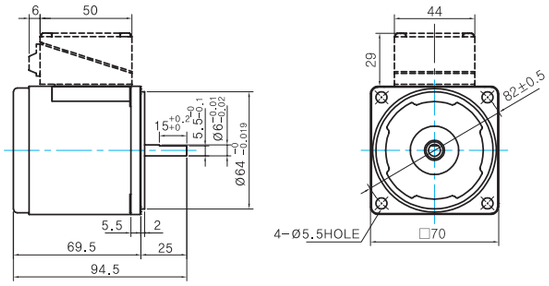
## Motor Images

| 7IDD□-6 | 7IDD□-6-T | 7IDG□-6G+7GBK□BMH |
|---|---|---|
| | | |

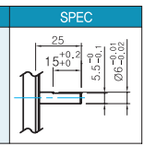
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7IDD□-6(-T) (NO FAN)




● MOTOR OUTPUT SHAFT

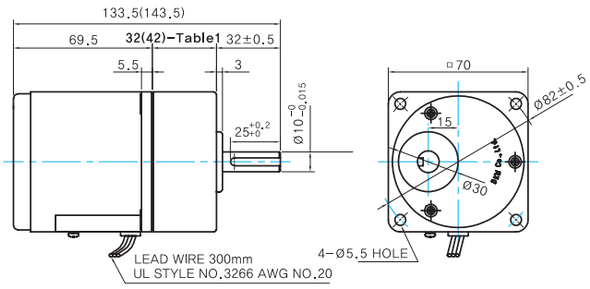
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## GEARED MOTOR

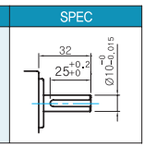
### G TYPE GEARBOX

● MOTOR MODEL:
7IDG□-6G (NO FAN)

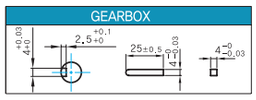
● GEARBOX MODEL:
7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

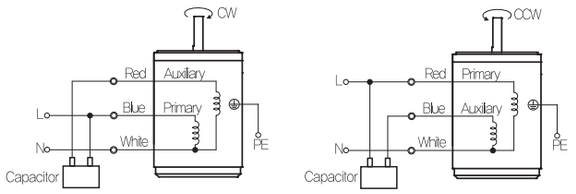
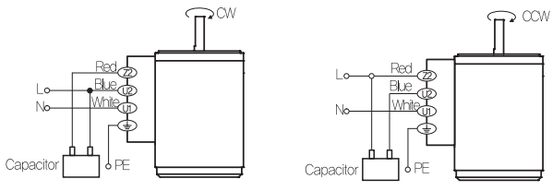
### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 0.83 |
| GEAR BOX | 7GBK3BMH - 7GBK18BMH | 0.38 |
| | 7GBK20BMH - 7GBK40BMH | 0.48 |
| | 7GBK50BMH - 7GBK200BMH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH - 7GBK18BMH |
| 42 | 7GBK20BMH - 7GBK200BMH |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 10W Induction Motor 10W(□70mm)

## Motor Specification

| Model<br>7IDG*-10G(-T): Gear Type Shaft<br>7IDD*-10(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Speed | Current | Torque | | |
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | r/min | A | kgfcm | N.m | μF / VAC |
| 7IDG1(A)-10G | 7IDG1(A)-10G-T | 10 | 1ø110 | 60 | 4 | Cont. | 0.58 | 0.058 | 1550 | 0.29 | 0.63 | 0.063 | 3.0 / 250 |
| 7IDG2(D)-10G | 7IDG2(D)-10G-T | 10 | 1ø220 | 60 | 4 | Cont. | 0.78 | 0.078 | 1550 | 0.18 | 0.63 | 0.063 | 1.0 / 450 |
| 7IDGE-10G | 7IDGE-10G-T | 10 | 1ø220 | 50 | 4 | Cont. | 0.63 | 0.063 | 1200 | 0.16 | 0.81 | 0.081 | 0.8 / 450 |
| | | | 1ø240 | | | | 0.76 | 0.076 | | 0.18 | 0.81 | 0.081 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| 7IDG*-10G | 7GBK□ BMH | kgfcm | 1.5 | 1.8 | 2.5 | 3.1 | 3.8 | 4.6 | 5.1 | 6.4 | 7.6 | 9.2 | 9.2 | 11.5 | 13.8 | 16.5 | 18.3 | 20.7 | 24.9 | 31.1 | 37.3 | 41.5 | 49.8 | 50.0 | 50.0 |
| | | N.m | 0.15 | 0.18 | 0.25 | 0.30 | 0.37 | 0.45 | 0.50 | 0.62 | 0.75 | 0.90 | 0.90 | 1.12 | 1.35 | 1.62 | 1.80 | 2.03 | 2.44 | 3.05 | 3.66 | 4.06 | 4.88 | 4.90 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 200 |
|---|---|---|---|
| | | r/min | 9 |
| 7IDG*-10G | 7GBK□ BMH | kgfcm | 50.0 |
| | | N.m | 4.90 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 |
| 7IDG*-10G | 7GBK□ BMH | kgfcm | 2.0 | 2.4 | 3.3 | 3.9 | 4.9 | 5.9 | 6.6 | 8.2 | 9.9 | 11.8 | 11.9 | 14.8 | 17.8 | 21.3 | 23.7 | 26.8 | 32.1 | 40.2 | 48.2 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 0.19 | 0.23 | 0.32 | 0.39 | 0.48 | 0.58 | 0.64 | 0.81 | 0.97 | 1.16 | 1.16 | 1.45 | 1.74 | 2.09 | 2.32 | 2.62 | 3.15 | 3.94 | 4.72 | 4.90 | 4.90 | 4.90 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 200 |
|---|---|---|---|
| | | r/min | 7.5 |
| 7IDG*-10G | 7GBK□ BMH | kgfcm | 50.0 |
| | | N.m | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

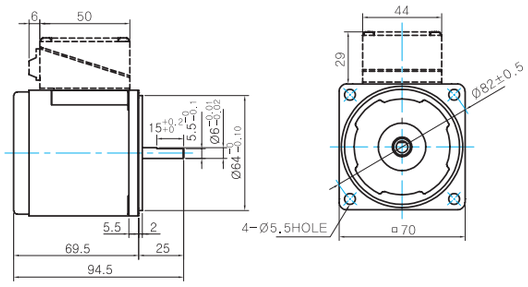
## Motor Images

| 7IDD□-10 | 7IDD□-10-T | 7IDG□-10G+7GBK□BMH |
|---|---|---|
| | | |

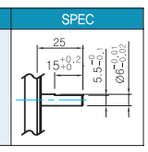
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7IDD□-10(-T) (NO FAN)



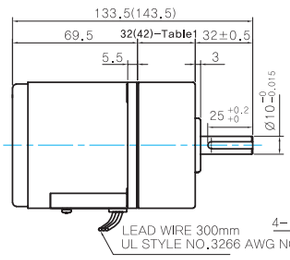

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

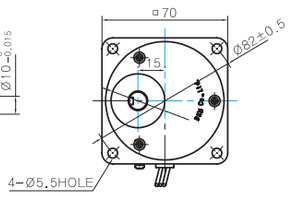
## GEARED MOTOR

### G TYPE GEARBOX

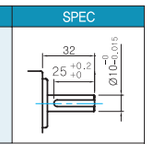
● MOTOR MODEL:
7IDG□-10G (NO FAN)



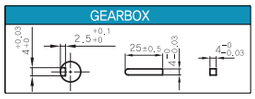

● GEARBOX MODEL:
7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

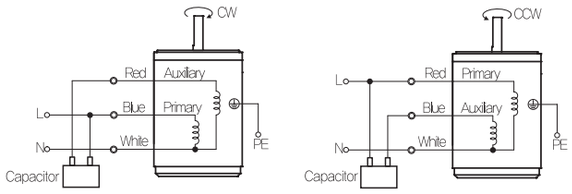
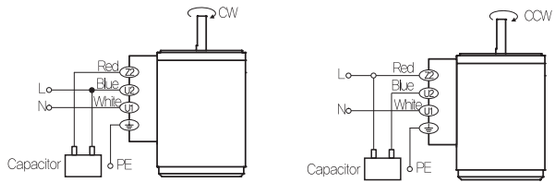
### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 0.83 |
| GEAR BOX | 7GBK3BMH - 7GBK18BMH | 0.38 |
| | 7GBK20BMH - 7GBK40BMH | 0.48 |
| | 7GBK50BMH - 7GBK200BMH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH - 7GBK18BMH |
| 42 | 7GBK20BMH - 7GBK200BMH |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 15W Induction Motor 15W(□70mm)

## Motor Specification

| Model<br>7IDG*-15G(-T): Gear Type Shaft<br>7IDD*-15(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Speed | Current | Torque | | |
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | r/min | A | kgfcm | N.m | μF / VAC |
| 7IDG1(A)-15G | 7IDG1(A)-15G-T | 15 | 1ø110 | 60 | 4 | Cont. | 0.70 | 0.070 | 1550 | 0.33 | 0.94 | 0.094 | 3.5 / 250 |
| 7IDG2(D)-15G | 7IDG2(D)-15G-T | 15 | 1ø220 | 60 | 4 | Cont. | 1.02 | 0.102 | 1600 | 0.19 | 0.91 | 0.091 | 1.2 / 450 |
| 7IDGE-15G | 7IDGE-15G-T | 15 | 1ø220 | 50 | 4 | Cont. | 0.94 | 0.094 | 1200 | 0.17 | 1.22 | 0.122 | 1.0 / 450 |
| | | | 1ø240 | | | | 1.12 | 0.112 | | 0.19 | 1.22 | 0.122 | |
| 7IDG3(G)-15G | 7IDG3(G)-15G-T | 15 | 3ø 220 | 50 | 4 | Cont. | 3.20 | 0.320 | 1300 | 0.27 | 1.13 | 0.113 | – |
| | | | | 60 | | | 2.30 | 0.230 | 1550 | 0.22 | 0.94 | 0.094 | |
| | | | 3ø 230 | 50 | 4 | Cont. | 3.60 | 0.360 | 1300 | 0.28 | 1.13 | 0.113 | |
| | | | | 60 | | | 2.50 | 0.250 | 1550 | 0.24 | 0.94 | 0.094 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E, G contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| 7IDG*-15G | 7GBK□ BMH | kgfcm | 2.2 | 2.7 | 3.7 | 4.4 | 5.5 | 6.7 | 7.4 | 9.2 | 11.1 | 13.3 | 13.3 | 16.7 | 20.0 | 24.0 | 26.7 | 30.1 | 36.2 | 45.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 0.22 | 0.26 | 0.36 | 0.43 | 0.54 | 0.65 | 0.72 | 0.91 | 1.09 | 1.30 | 1.31 | 1.63 | 1.96 | 2.35 | 2.61 | 2.95 | 3.54 | 4.43 | 4.90 | 4.90 | 4.90 | 4.90 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 200 |
|---|---|---|---|
| | | r/min | 9 |
| 7IDG*-15G | 7GBK□ BMH | kgfcm | 50.0 |
| | | N.m | 4.90 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 |
| 7IDG*-15G | 7GBK□ BMH | kgfcm | 3.0 | 3.6 | 4.9 | 5.9 | 7.4 | 8.9 | 9.9 | 12.3 | 14.8 | 17.8 | 17.8 | 22.2 | 26.7 | 32.0 | 35.6 | 40.2 | 48.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 0.29 | 0.35 | 0.48 | 0.58 | 0.72 | 0.87 | 0.97 | 1.21 | 1.45 | 1.74 | 1.74 | 2.18 | 2.61 | 3.14 | 3.48 | 3.94 | 4.72 | 4.90 | 4.90 | 4.90 | 4.90 | 4.90 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 200 |
|---|---|---|---|
| | | r/min | 7.5 |
| 7IDG*-15G | 7GBK□ BMH | kgfcm | 50.0 |
| | | N.m | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

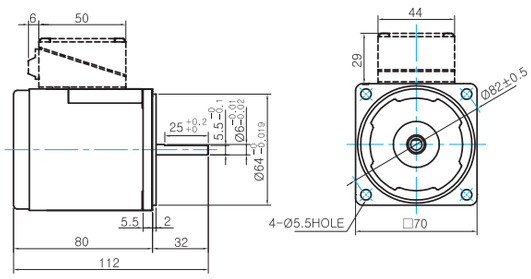
## Motor Images

| 7IDD□-15 | 7IDD□-15-T | 7IDG□-15G+7GBK□BMH |
|---|---|---|
| | | |

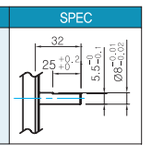
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7IDD□-15(-T) (NO FAN)



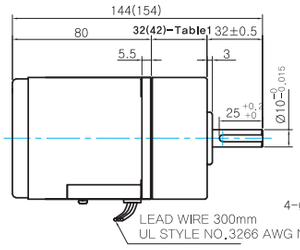

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

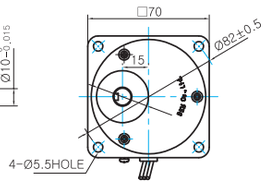
## GEARED MOTOR

## G TYPE GEARBOX

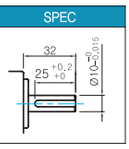
● MOTOR MODEL:
7IDG□-15G (NO FAN)



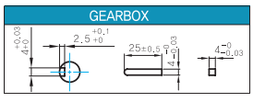

● GEARBOX MODEL:
7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

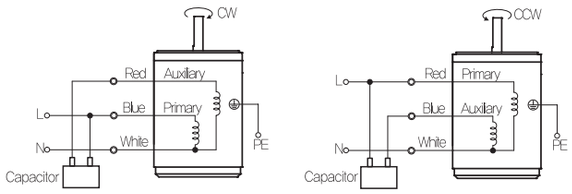
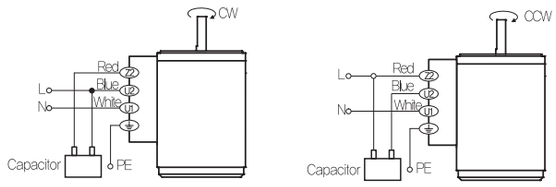
## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.10 |
| GEAR BOX | 7GBK3BMH - 7GBK18BMH | 0.38 |
| | 7GBK20BMH - 7GBK40BMH | 0.48 |
| | 7GBK50BMH - 7GBK200BMH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH - 7GBK18BMH |
| 42 | 7GBK20BMH - 7GBK200BMH |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 15W Induction Motor 15W(□80mm)

## Motor Specification

| Model<br>8IDG*-15□(-T): Gear Type Shaft<br>8IDD*-15(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Speed | Current | Torque | | |
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | r/min | A | kgfcm | N.m | μF / VAC |
| 8IDG1(A)-15□ | 8IDG1(A)-15□-T | 15 | 1ø110 | 60 | 4 | Cont. | 0.95 | 0.095 | 1600 | 0.54 | 0.91 | 0.091 | 3.5 / 250 |
| 8IDG2(D)-15□ | 8IDG2(D)-15□-T | 15 | 1ø220 | 60 | 4 | Cont. | 1.25 | 0.125 | 1600 | 0.23 | 0.91 | 0.091 | 1.2 / 450 |
| 8IDGE-15□ | 8IDGE-15□-T | 15 | 1ø220 | 50 | 4 | Cont. | 1.05 | 0.105 | 1300 | 0.23 | 1.12 | 0.112 | 1.0 / 450 |
| | | | 1ø240 | | | | 1.27 | 0.127 | | 0.25 | 1.12 | 0.112 | |
| 8IDG3(G)-15□ | 8IDG3(G)-15□-T | 15 | 3ø220 | 50 | 4 | Cont. | 7.61 | 0.761 | 1350 | 0.29 | 1.08 | 0.108 | – |
| | | | | 60 | | | 6.15 | 0.615 | 1600 | 0.26 | 0.91 | 0.091 | |
| | | | 3ø230 | 50 | 4 | Cont. | 8.25 | 0.825 | 1350 | 0.32 | 1.08 | 0.108 | |
| | | | | 60 | | | 6.72 | 0.672 | 1600 | 0.28 | 0.91 | 0.091 | |
| 8IDG4(K)-15□ | 8IDG4(K)-15□-T | 15 | 3ø380 | 50 | 4 | Cont. | 5.70 | 0.570 | 1350 | 0.12 | 1.08 | 0.108 | – |
| | | | | 60 | | | 4.53 | 0.453 | 1600 | 0.11 | 0.91 | 0.091 | |
| | | | 3ø400 | 50 | 4 | Cont. | 6.26 | 0.626 | 1350 | 0.13 | 1.08 | 0.108 | |
| | | | | 60 | | | 5.03 | 0.503 | 1600 | 0.12 | 0.91 | 0.091 | |
| 8IDG5(L)-15□ | 8IDG5(L)-15□-T | 15 | 3ø415 | 50 | 4 | Cont. | 6.68 | 0.668 | 1350 | 0.14 | 1.08 | 0.108 | – |
| | | | | 60 | | | 5.40 | 0.540 | 1600 | 0.12 | 0.91 | 0.091 | |
| | | | 3ø440 | 50 | 4 | Cont. | 7.39 | 0.739 | 1350 | 0.15 | 1.08 | 0.108 | |
| | | | | 60 | | | 6.02 | 0.602 | 1600 | 0.13 | 0.91 | 0.091 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching gearbox and D-Cut Type Shaft is for using motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 |
| 8IDG*-15G | 8GBK□BMH | kgfcm | 2.2 | 2.7 | 3.7 | 4.4 | 5.5 | 6.7 | 7.4 | 9.2 | 11.1 | 13.3 | 13.3 | 16.7 | 20.0 | 24.0 | 26.7 | 30.1 | 36.2 | 45.2 | 54.2 | 60.3 | 72.3 |
| | | N.m | 0.22 | 0.26 | 0.36 | 0.43 | 0.54 | 0.65 | 0.72 | 0.91 | 1.09 | 1.30 | 1.31 | 1.63 | 1.96 | 2.35 | 2.61 | 2.95 | 3.54 | 4.43 | 5.32 | 5.91 | 7.09 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 12 | 10 | 9 | 7 | 6 | 5 |
| 8IDG*-15G | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 8IDG*-15W | 8WD□BL/□BR/□BRL | kgfcm | 7.5 | 8.8 | 10.5 | 12.2 | 16.0 | 18.1 | 21.0 | 27.4 | 30.1 |
| | | N.m | 0.73 | 0.86 | 1.03 | 1.19 | 1.57 | 1.77 | 2.06 | 2.68 | 2.95 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 |
| 8IDG*-15G | 8GBK□BMH | kgfcm | 2.6 | 3.2 | 4.4 | 5.3 | 6.6 | 7.9 | 8.8 | 11.0 | 13.1 | 15.8 | 15.8 | 19.8 | 23.7 | 28.4 | 31.6 | 35.7 | 42.9 | 53.6 | 64.3 | 71.4 | 80.0 |
| | | N.m | 0.26 | 0.31 | 0.43 | 0.52 | 0.64 | 0.77 | 0.86 | 1.07 | 1.29 | 1.55 | 1.55 | 1.94 | 2.32 | 2.79 | 3.10 | 3.50 | 4.20 | 5.25 | 6.30 | 7.00 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 10 | 8 | 7.5 | 6 | 5 | 4 |
| 8IDG*-15G | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

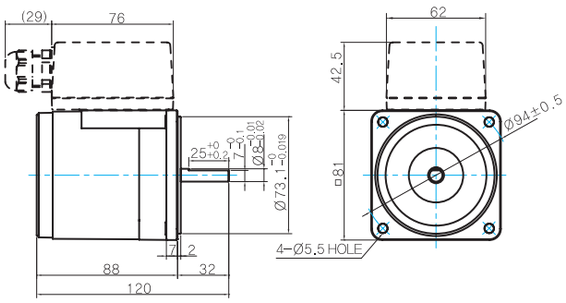
| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 8IDG*-15W | 8WD□BL/□BR/□BRL | kgfcm | 8.9 | 10.4 | 12.5 | 14.4 | 18.9 | 21.4 | 24.9 | 32.5 | 35.7 |
| | | N.m | 0.87 | 1.02 | 1.22 | 1.41 | 1.86 | 2.10 | 2.44 | 3.18 | 3.50 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

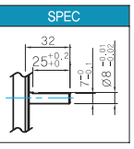
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 8IDD□-15(-T) (NO FAN)

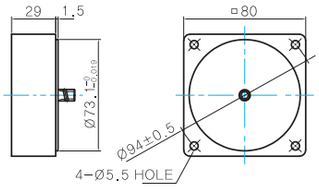



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## INTER-DECIMAL GEARBOX

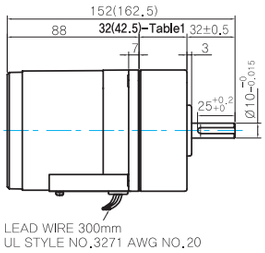
● MODEL: 8XD10□□



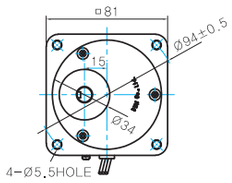

## GEARED MOTOR

## G TYPE GEARBOX

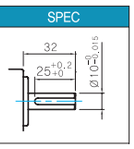
● MOTOR MODEL:
8IDG□-15G (NO FAN)




● GEARBOX MODEL:
8GBK□BMH




● GEARHEAD OUTPUT SHAFT

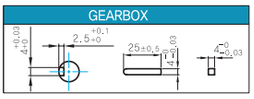
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● 32(42.5)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 8GBK3BMH - 8GBK18BMH |
| 42.5 | 8GBK20BMH - 8GBK360BMH |

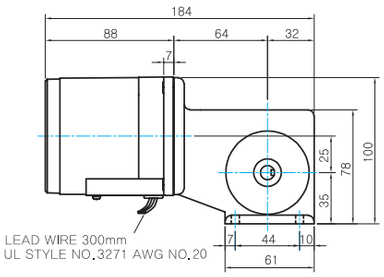
● KEY SPEC

GEARBOX

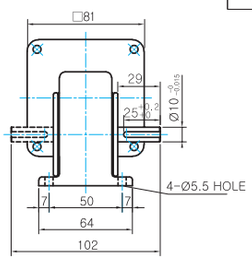


## W TYPE GEARBOX

● MOTOR MODEL:
8IDG□-15W (NO FAN)

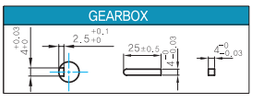



● GEARBOX MODEL:
8WD□BL/BR/BRL




● KEY SPEC

GEARBOX



## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.56 |
| GEAR BOX | 8GBK3BMH - 8GBK18BMH | 0.56 |
| | 8GBK20BMH - 8GBK40BMH | 0.65 |
| | 8GBK50BMH - 8GBK360BMH | 0.72 |
| | 8WD□BL/BR/BRL | 0.68 |
| | 8XD10□□ | 0.45 |

# Motor Images

| 8IDD□-15 | 8IDD□-15-T | 8IDG□-15G+8GBK□BMH | 8IDG□-15W+8WD□BL |
|---|---|---|---|
| | | | |

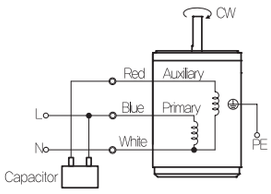
# B AC Motors

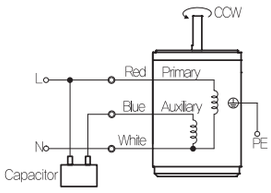
## Induction Motor 15W(□80mm)

### Connection Diagrams

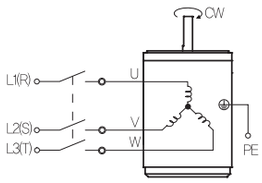
| Lead Wire Type | Terminal Box Type |
|---|---|

**[Single Phase]**



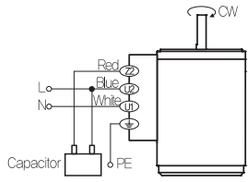



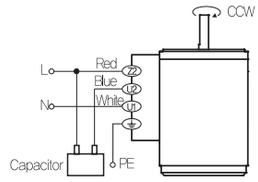

**[Three Phase]**



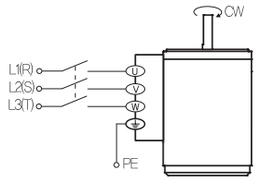

* CCW Direction:
Change any two connections between R, S and T.

**[Single Phase]**




**[Three Phase]**




* CCW Direction:
Change any two connections between R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 25W Induction Motor 25W(□80mm)

## Motor Specification

| Model<br>8IDG*-25□(-T): Gear Type Shaft<br>8IDD*-25(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 8IDG1(A)-25□ | 8IDG1(A)-25□-T | 25 | 1ø110 | 60 | 4 | Cont. | 1.63 | 0.163 | 1600 | 0.55 | 1.52 | 0.152 | 6.0 / 250 |
| 8IDG2(D)-25□ | 8IDG2(D)-25□-T | 25 | 1ø220 | 60 | 4 | Cont. | 1.59 | 0.159 | 1550 | 0.27 | 1.57 | 0.157 | 1.5 / 450 |
| 8IDGE-25□ | 8IDGE-25□-T | 25 | 1ø220 | 50 | 4 | Cont. | 1.57 | 0.157 | 1250 | 0.23 | 1.95 | 0.195 | 1.5 / 450 |
| | | | 1ø240 | | | | 1.87 | 0.187 | | 0.25 | 1.95 | 0.195 | |
| 8IDG3(G)-25□ | 8IDG3(G)-25□-T | 25 | 3ø220 | 50 | 4 | Cont. | 7.61 | 0.761 | 1350 | 0.29 | 1.80 | 0.180 | – |
| | | | | 60 | | | 6.15 | 0.615 | 1600 | 0.26 | 1.52 | 0.152 | |
| | | | 3ø230 | 50 | 4 | Cont. | 8.25 | 0.825 | 1350 | 0.32 | 1.80 | 0.180 | |
| | | | | 60 | | | 6.72 | 0.672 | 1600 | 0.28 | 1.52 | 0.152 | |
| 8IDG4(K)-25□ | 8IDG4(K)-25□-T | 25 | 3ø380 | 50 | 4 | Cont. | 5.70 | 0.570 | 1300 | 0.13 | 1.87 | 0.187 | – |
| | | | | 60 | | | 4.53 | 0.453 | 1550 | 0.12 | 1.57 | 0.157 | |
| | | | 3ø400 | 50 | 4 | Cont. | 6.26 | 0.626 | 1300 | 0.14 | 1.87 | 0.187 | |
| | | | | 60 | | | 5.03 | 0.503 | 1550 | 0.13 | 1.57 | 0.157 | |
| 8IDG5(L)-25□ | 8IDG5(L)-25□-T | 25 | 3ø415 | 50 | 4 | Cont. | 6.68 | 0.668 | 1300 | 0.15 | 1.87 | 0.187 | – |
| | | | | 60 | | | 5.40 | 0.540 | 1550 | 0.13 | 1.57 | 0.157 | |
| | | | 3ø440 | 50 | 4 | Cont. | 7.39 | 0.739 | 1300 | 0.16 | 1.87 | 0.187 | |
| | | | | 60 | | | 6.02 | 0.602 | 1550 | 0.14 | 1.57 | 0.157 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 |
| 8IDG*-25G | 8GBK□ BMH | kgfcm | 3.7 | 4.4 | 6.2 | 7.4 | 9.2 | 11.1 | 12.3 | 15.4 | 18.5 | 22.2 | 22.2 | 27.8 | 33.3 | 40.0 | 44.4 | 50.2 | 60.3 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.36 | 0.43 | 0.60 | 0.72 | 0.91 | 1.09 | 1.21 | 1.51 | 1.81 | 2.17 | 2.18 | 2.72 | 3.27 | 3.92 | 4.35 | 4.92 | 5.91 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 12 | 10 | 9 | 7 | 6 | 5 |
| 8IDG*-25G | 8GBK□ BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 8IDG*-25W | 8WD□BL/□BR/□BRL | kgfcm | 12.5 | 14.6 | 17.6 | 20.3 | 26.6 | 30.1 | 35.1 | 45.7 | 50.2 |
| | | N.m | 1.22 | 1.43 | 1.72 | 1.99 | 2.61 | 2.95 | 3.44 | 4.47 | 4.92 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 |
| 8IDG*-25G | 8GBK□ BMH | kgfcm | 4.4 | 5.3 | 7.3 | 8.8 | 11.0 | 13.1 | 14.6 | 18.3 | 21.9 | 26.3 | 26.3 | 32.9 | 39.5 | 47.4 | 52.7 | 59.5 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.43 | 0.52 | 0.72 | 0.86 | 1.07 | 1.29 | 1.43 | 1.79 | 2.15 | 2.58 | 2.58 | 3.23 | 3.87 | 4.65 | 5.16 | 5.83 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 10 | 8 | 7.5 | 6 | 5 | 4 |
| 8IDG*-25G | 8GBK□ BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 8IDG*-25W | 8WD□BL/□BR/□BRL | kgfcm | 14.8 | 17.3 | 20.8 | 24.0 | 31.6 | 35.7 | 41.6 | 54.1 | 59.5 |
| | | N.m | 1.45 | 1.70 | 2.04 | 2.35 | 3.09 | 3.50 | 4.07 | 5.30 | 5.83 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction. 4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

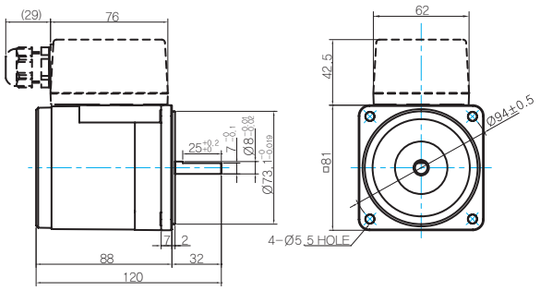
# B AC Motors

## Induction Motor 25W(□80mm)

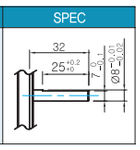
## Dimensions

### MOTOR ONLY

● MOTOR MODEL: 8IDD□-25(-T) (NO FAN)

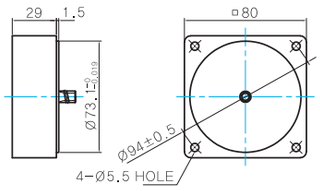



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

### INTER-DECIMAL GEARBOX

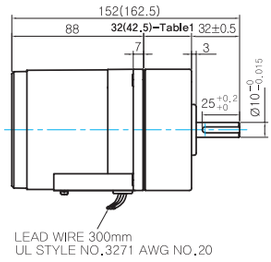
● MODEL: 8XD10□□



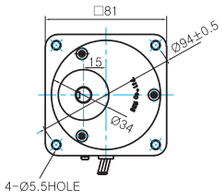

## GEARED MOTOR

### G TYPE GEARBOX

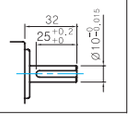
● MOTOR MODEL:
8IDG□-25G (NO FAN)




● GEARBOX MODEL:
8GBK□BMH

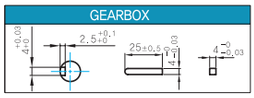



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

GEARBOX

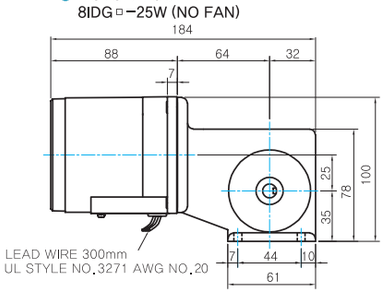


● 32(42.5)-Table1

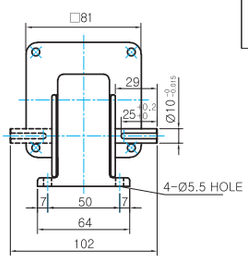
| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 8GBK3BMH – 8GBK18BMH |
| 42.5 | 8GBK20BMH – 8GBK360BMH |

### W TYPE GEARBOX

● MOTOR MODEL:
8IDG□-25W (NO FAN)

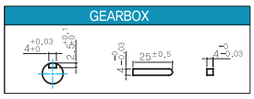



● GEARBOX MODEL:
8WD□BL/BR/BRL




● KEY SPEC

GEARBOX



### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.56 |
| GEAR BOX | 8GBK3BMH ~ 8GBK18BMH | 0.56 |
| | 8GBK20BMH ~ 8GBK40BMH | 0.65 |
| | 8GBK50BMH ~ 8GBK360BMH | 0.72 |
| | 8WD□BL/BR/BRL | 0.68 |
| | 8XD10□□ | 0.45 |

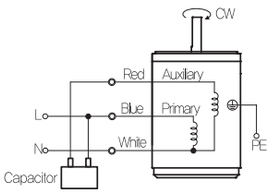
## Motor Images

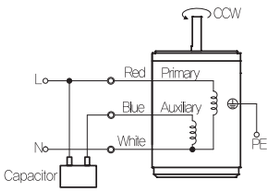
| 8IDD□-25 | 8IDD□-25-T | 8IDG□-25G+8GBK□BMH | 8IDG□-25W+8WD□BL |
|---|---|---|---|
| | | | |

## Connection Diagrams

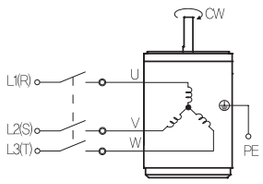
**Lead Wire Type**

**[Single Phase]**



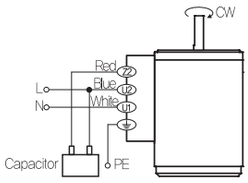

**[Three Phase]**

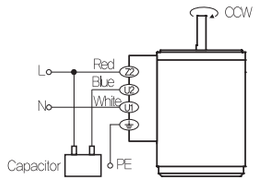



* CCW Direction:
Change any two connections between R, S and T.

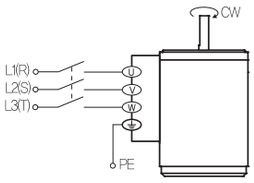
**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* CCW Direction:
Change any two connections between R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# B AC Motors

## Induction Motor 40W(□80mm)

# 40W Induction Motor 40W(□80mm)

## Motor Specification

| Model<br>8IDG*-40F□(-T): Gear Type Shaft<br>8IDD*-40F(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 8IDG1(A)-40F□ | 8IDG1(A)-40F□-T | 40 | 1ø110 | 60 | 4 | Cont. | 2.15 | 0.215 | 1550 | 0.65 | 2.52 | 0.252 | 8.0 / 250 |
| 8IDG2(D)-40F□ | 8IDG2(D)-40F□-T | 40 | 1ø220 | 60 | 4 | Cont. | 2.15 | 0.215 | 1500 | 0.33 | 2.60 | 0.260 | 2.0 / 450 |
| 8IDGE-40F□ | 8IDGE-40F□-T | 40 | 1ø220 | 50 | 4 | Cont. | 2.15 | 0.215 | 1200 | 0.33 | 3.25 | 0.325 | 2.0 / 450 |
| | | | 1ø240 | | | | 2.60 | 0.260 | 1250 | 0.33 | 3.12 | 0.312 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 |
| 8IDG*-40FG | 8GBK□BMH | kgfcm | 6.1 | 7.3 | 10.2 | 12.2 | 15.3 | 18.4 | 20.4 | 25.5 | 30.6 | 36.7 | 36.8 | 46.0 | 55.2 | 66.2 | 73.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.60 | 0.72 | 1.00 | 1.20 | 1.50 | 1.80 | 2.00 | 2.50 | 3.00 | 3.60 | 3.61 | 4.51 | 5.41 | 6.49 | 7.21 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 12 | 10 | 9 | 7 | 6 | 5 |
| 8IDG*-40FG | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 8IDG*-40FW | 8WD□BL/□BR/□BRL | kgfcm | 20.7 | 24.2 | 29.1 | 33.6 | 44.1 | 49.9 | 58.1 | 60.0 | 60.0 |
| | | N.m | 2.03 | 2.37 | 2.85 | 3.29 | 4.32 | 4.89 | 5.69 | 5.88 | 5.88 |

### 50Hz

| Motor Model | Gearbox Model | Gear ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 |
| 8IDG*-40FG | 8GBK□BMH | kgfcm | 7.6 | 9.1 | 12.6 | 15.2 | 19.0 | 22.7 | 25.3 | 31.6 | 37.9 | 45.5 | 45.6 | 56.9 | 68.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.74 | 0.89 | 1.24 | 1.49 | 1.86 | 2.23 | 2.48 | 3.10 | 3.71 | 4.46 | 4.46 | 5.58 | 6.70 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

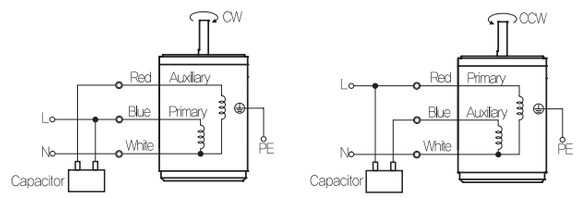
| Motor Model | Gearbox Model | Gear ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 10 | 8 | 7.5 | 6 | 5 | 4 |
| 8IDG*-40FG | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 8IDG*-40FW | 8WD□BL/□BR/□BRL | kgfcm | 25.6 | 30.0 | 36.0 | 41.6 | 54.6 | 60.0 | 60.0 | 60.0 | 60.0 |
| | | N.m | 2.51 | 2.94 | 3.53 | 4.07 | 5.35 | 5.88 | 5.88 | 5.88 | 5.88 |

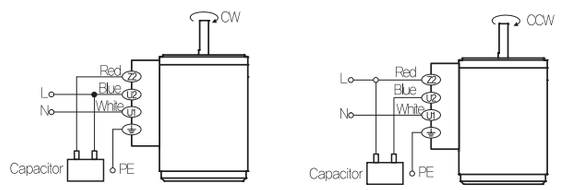
1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

## Connection Diagrams

**Lead Wire Type**




**Terminal Box Type**

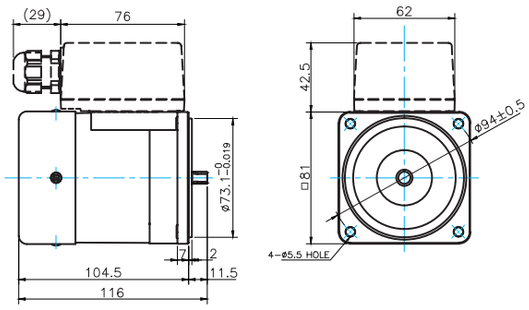



1) The direction of motor rotation is as viewed from the shaft end of the motor. 2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

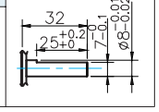
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 8ID□□-40F□(-T)

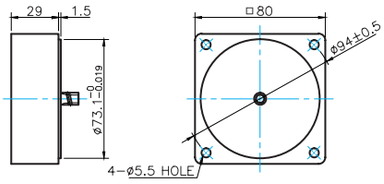



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 8IDD□-25 | |

## INTER-DECIMAL GEARBOX

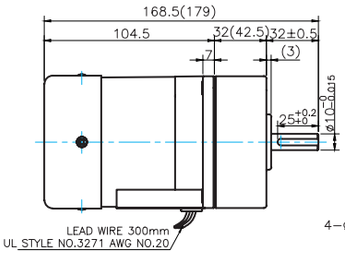
● MODEL: 8XD10□□



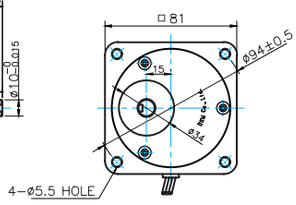

## GEARED MOTOR

### G TYPE GEARBOX

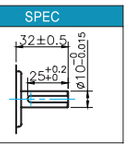
● MOTOR MODEL : 8IDG□-40FG




● GEARBOX MODEL : 8GBK□BMH



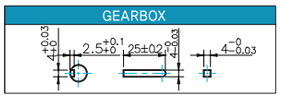

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● 32(42.5)-Table1

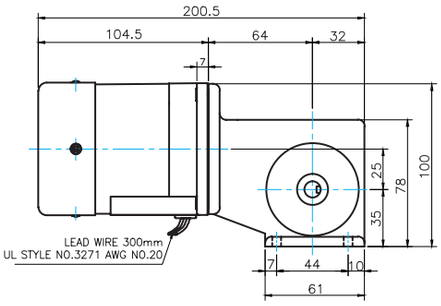
| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 8GBK3BMH ~ 8GBK18BMH |
| 42.5 | 8GBK20BMH ~ 8GBK360BMH |

● Key Spec

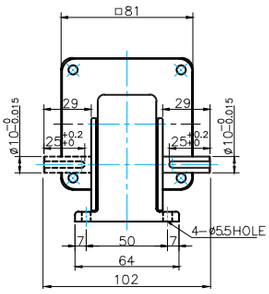



### W TYPE GEARBOX

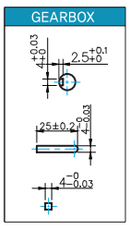
● MOTOR MODEL : 8IDG□-40FW




● GEARBOX MODEL : 8WD□BL/BR/BRL




● Key Spec




### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.66 |
| GEAR BOX | 8GBK3BMH ~ 8GBK18BMH | 0.56 |
| | 8GBK20BMH ~ 8GBK40BMH | 0.65 |
| | 8GBK50BMH ~ 8GBK360BMH | 0.72 |
| | 8WD□BL/BR/BRL | 0.68 |
| | 8XD10□□ | 0.45 |

# Motor Images

| 8IDD□-40F | 8IDD□-40F-T | 8IDG□-40FG+8GBK□BMH | 8IDG□-40FW+8WD□BL |
|---|---|---|---|
| | | | |

# 40W Induction Motor 40W(□90mm)

## Motor Specification

| Model<br>9IDG*-40□(-T): Gear Type Shaft<br>9IDD*-40(-T): D-Cut Type Shaft<br>9IDK*-40(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDG1(A)-40□ | 9IDG1(A)-40□-T | 40 | 1ø110 | 60 | 4 | Cont. | 2.60 | 0.260 | 1600 | 0.80 | 2.44 | 0.244 | 10.0 / 250 |
| 9IDG2(D)-40□ | 9IDG2(D)-40□-T | 40 | 1ø220 | 60 | 4 | Cont. | 2.60 | 0.260 | 1600 | 0.45 | 2.44 | 0.244 | 2.5 / 450 |
| 9IDGE-40□ | 9IDGE-40□-T | 40 | 1ø220 | 50 | 4 | Cont. | 2.10 | 0.210 | 1300 | 0.33 | 3.00 | 0.300 | 2.0 / 450 |
| | | | 1ø240 | | | | 2.60 | 0.260 | | 0.36 | 3.00 | 0.300 | |
| 9IDG3(G)-40□ | 9IDG3(G)-40□-T | 40 | 3ø220 | 50 | 4 | Cont. | 9.90 | 0.990 | 1350 | 0.33 | 2.89 | 0.289 | - |
| | | | | 60 | | | 7.90 | 0.790 | 1600 | 0.31 | 2.44 | 0.244 | |
| | | | 3ø230 | 50 | 4 | Cont. | 10.80 | 1.080 | 1350 | 0.35 | 2.89 | 0.289 | |
| | | | | 60 | | | 8.50 | 0.850 | 1600 | 0.33 | 2.44 | 0.244 | |
| 9IDG4(K)-40□ | 9IDG4(K)-40□-T | 40 | 3ø380 | 50 | 4 | Cont. | 10.20 | 1.020 | 1350 | 0.19 | 2.89 | 0.289 | - |
| | | | | 60 | | | 8.00 | 0.800 | 1600 | 0.18 | 2.44 | 0.244 | |
| | | | 3ø400 | 50 | 4 | Cont. | 11.10 | 1.110 | 1350 | 0.20 | 2.89 | 0.289 | |
| | | | | 60 | | | 8.80 | 0.880 | 1600 | 0.19 | 2.44 | 0.244 | |
| 9IDG5(L)-40□ | 9IDG5(L)-40□-T | 40 | 3ø415 | 50 | 4 | Cont. | 10.00 | 1.000 | 1350 | 0.17 | 2.89 | 0.289 | - |
| | | | | 60 | | | 8.00 | 0.800 | 1600 | 0.16 | 2.44 | 0.244 | |
| | | | 3ø 440 | 50 | 4 | Cont. | 11.10 | 1.110 | 1350 | 0.18 | 2.89 | 0.289 | |
| | | | | 60 | | | 8.90 | 0.890 | 1600 | 0.17 | 2.44 | 0.244 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name. 2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 |
| 9IDG*-40G | 9GBK□BMH | kgfcm | 3.9 | 5.9 | 7.1 | 9.9 | 11.8 | 14.8 | 17.8 | 19.7 | 24.7 | 29.6 | 35.5 | 35.6 | 44.4 | 53.3 | 64.0 | 71.1 | 80.4 | 96.4 | 100.0 | 100.0 | 100.0 |
| | | N.m | 0.39 | 0.58 | 0.70 | 0.97 | 1.16 | 1.45 | 1.74 | 1.93 | 2.42 | 2.90 | 3.48 | 3.48 | 4.35 | 5.23 | 6.27 | 6.97 | 7.87 | 9.45 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|
| | | r/min | 15 | 12 | 10 | 9 |
| 9IDG*-40G | 9GBK□BMH | kgfcm | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9IDG*-40W | 9WD□BL/□BR/□BRL | kgfcm | 20.0 | 23.4 | 28.1 | 32.4 | 42.6 | 48.2 | 56.1 | 73.1 | 80.4 |
| | | N.m | 1.96 | 2.29 | 2.76 | 3.18 | 4.18 | 4.72 | 5.50 | 7.16 | 7.87 |

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9IDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 3.9 | 5.9 | 7.1 | 9.9 | 11.8 | 14.8 | 17.8 | 19.7 | 22.2 | 26.7 | 32.0 | 35.6 | 40.2 | 48.2 | 57.9 | 64.3 | 80.4 | 96.4 | 107.7 | 129.3 | 143.7 | 172.4 | 200.0 | 200.0 | 200.0 |
| | | N.m | 0.39 | 0.58 | 0.70 | 0.97 | 1.16 | 1.45 | 1.74 | 1.93 | 2.18 | 2.61 | 3.14 | 3.48 | 3.94 | 4.72 | 5.67 | 6.30 | 7.87 | 9.45 | 10.56 | 12.67 | 14.08 | 16.90 | 19.60 | 19.60 | 19.60 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 |
| 9IDG*-40G | 9GBK□BMH | kgfcm | 4.7 | 7.0 | 8.4 | 11.7 | 14.0 | 17.5 | 21.0 | 23.4 | 29.2 | 35.1 | 42.1 | 42.1 | 52.7 | 63.2 | 75.8 | 84.3 | 95.2 | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 0.46 | 0.69 | 0.82 | 1.15 | 1.37 | 1.72 | 2.06 | 2.29 | 2.86 | 3.44 | 4.12 | 4.13 | 5.16 | 6.19 | 7.43 | 8.26 | 9.33 | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|
| | | r/min | 13 | 10 | 8 | 7 |
| 9IDG*-40G | 9GBK□BMH | kgfcm | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9IDG*-40W | 9WD□BL/□BR/□BRL | kgfcm | 23.7 | 27.7 | 33.3 | 38.4 | 50.5 | 57.1 | 66.5 | 86.6 | 95.2 |
| | | N.m | 2.32 | 2.72 | 3.27 | 3.77 | 4.95 | 5.60 | 6.52 | 8.48 | 9.33 |

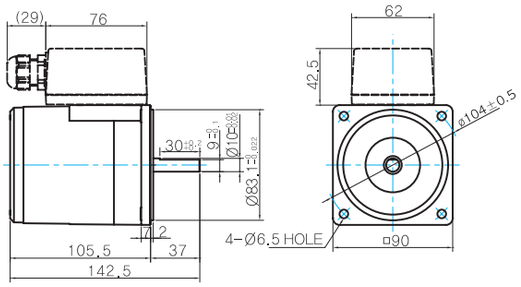
| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9IDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 4.7 | 7.0 | 8.4 | 11.7 | 14.0 | 17.5 | 21.0 | 23.4 | 26.3 | 31.6 | 37.9 | 42.1 | 47.6 | 57.1 | 68.6 | 76.2 | 95.2 | 114.3 | 127.7 | 153.2 | 170.3 | 200.0 | 200.0 | 200.0 | 200.0 |
| | | N.m | 0.46 | 0.69 | 0.82 | 1.15 | 1.37 | 1.72 | 2.06 | 2.29 | 2.58 | 3.10 | 3.72 | 4.13 | 4.67 | 5.60 | 6.72 | 7.47 | 9.33 | 11.20 | 12.51 | 15.02 | 16.69 | 19.60 | 19.60 | 19.60 | 19.60 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

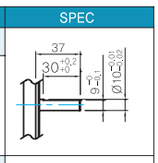
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 9IDD□-40(-T) (NO FAN)

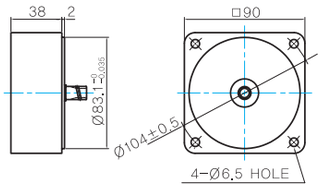



● MOTOR OUTPUT SHAFT

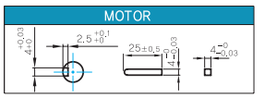
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-40 | |
| KEY TYPE | |
| 9IDK□-40 | |

## INTER-DECIMAL GEARBOX

● MODEL: 9XD10□□



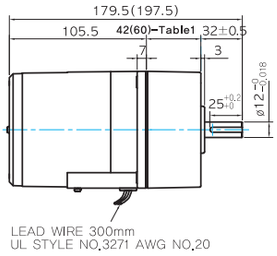

● KEY SPEC



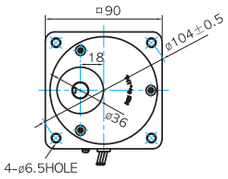

## GEARED MOTOR

## G TYPE GEARBOX

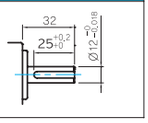
● MOTOR MODEL:
9IDG□-40G (NO FAN)




● GEARBOX MODEL:
9GBK□BMH



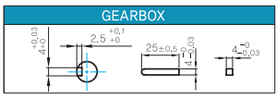

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● 42(60)-Table1

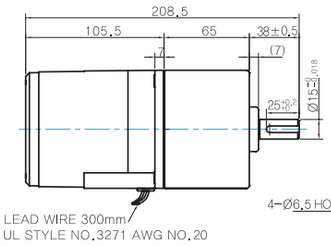
| SIZE(mm) | GEAR RATIO |
|---|---|
| 42 | 9GBK2BMH – 9GBK18BMH |
| 60 | 9GBK20BMH – 9GBK200BMH |

● Key Spec

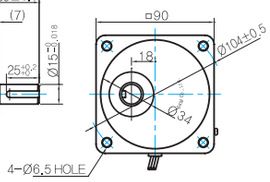



## P TYPE GEARBOX

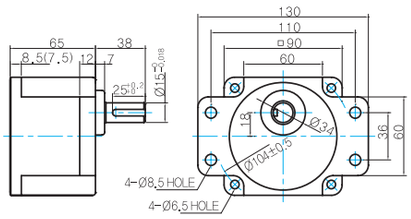
● MOTOR MODEL :
9IDG□-40P (NO FAN)



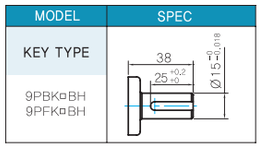

● GEARBOX MODEL :
9PBK□BH



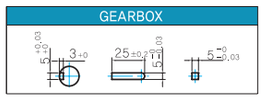

● GEARBOX MODEL :
9PFK□BH




● GEARBOX OUTPUT SHAFT

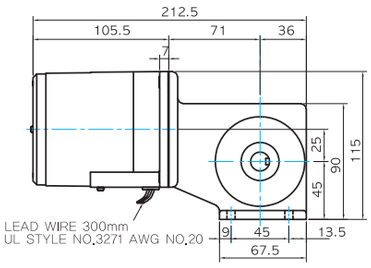
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

● KEY SPEC

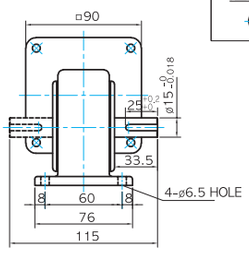



## W TYPE GEARBOX

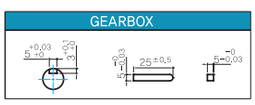
● MOTOR MODEL:
9IDG□-40W (NO FAN)




● GEARBOX MODEL:
9WD□BL/BR/BRL




● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 2.45 |
| GEAR BOX | 9GBK2BMH ~ 9GBK18BMH | 0.78 |
| | 9GBK20BMH ~ 9GBK40BMH | 1.1 |
| | 9GBK50BMH ~ 9GBK200BMH | 1.2 |
| | 9PB(F)K2BH ~ 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH ~ 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH ~ 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH ~ 9PB(F)K200BH | 1.47 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9XD10□□ | 0.6 |

# B AC Motors

## Induction Motor 40W(□90mm)

### Motor Images

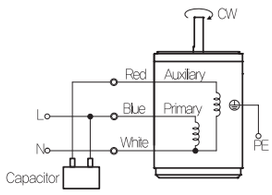
| 9IDD□-40 | 9IDD□-40-T | 9IDG□-40G+9GBK□BMH | 9IDG□-40P+9PBK□BH |
|---|---|---|---|
| | | | |

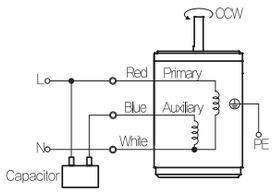
| 9IDG□-40W+9WD□BL |
|---|
| |

### Connection Diagrams

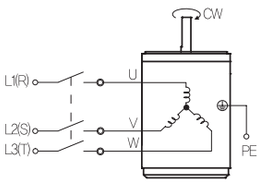
**Lead Wire Type**

**[Single Phase]**



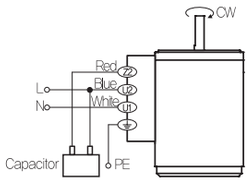

**[Three Phase]**

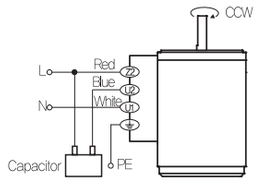



* CCW Direction:
Change any two connections between R, S and T.

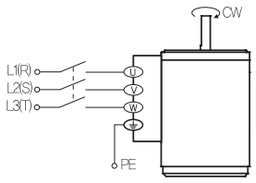
**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* CCW Direction:
Change any two connections between R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 60W Induction Motor 60W(□ 90mm)

## Motor Specification

| Model<br>9IDG*-60F□(-T): Gear Type Shaft<br>9IDD*-60F(-T): D-Cut Type Shaft<br>9IDK*-60F(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDG1(A)-60F□ | 9IDG1(A)-60F□-T | 60 | 1ø 110 | 60 | 4 | Cont. | 4.30 | 0.430 | 1600 | 1.30 | 3.65 | 0.365 | 16.0 / 250 |
| 9IDG2(D)-60F□ | 9IDG2(D)-60F□-T | 60 | 1ø 220 | 60 | 4 | Cont. | 4.20 | 0.420 | 1600 | 0.68 | 3.65 | 0.365 | 4.0 / 450 |
| 9IDGE-60F□ | 9IDGE-60F□-T | 60 | 1ø 220 | 50 | 4 | Cont. | 3.90 | 0.390 | 1300 | 0.48 | 4.50 | 0.450 | 3.5 / 450 |
| | | | 1ø 240 | | | | 4.80 | 0.480 | | 0.54 | 4.50 | 0.450 | |
| 9IDG3(G)-60F□ | 9IDG3(G)-60F□-T | 60 | 3ø 220 | 50 | 4 | Cont. | 17.20 | 1.720 | 1350 | 0.59 | 4.33 | 0.433 | - |
| | | | | 60 | | | 13.80 | 1.380 | 1600 | 0.53 | 3.65 | 0.365 | |
| | | | 3ø 230 | 50 | 4 | Cont. | 18.80 | 1.880 | 1350 | 0.62 | 4.33 | 0.433 | |
| | | | | 60 | | | 15.00 | 1.500 | 1600 | 0.56 | 3.65 | 0.365 | |
| 9IDG4(K)-60F□ | 9IDG4(K)-60F□-T | 60 | 3ø 380 | 50 | 4 | Cont. | 16.70 | 1.670 | 1350 | 0.31 | 4.33 | 0.433 | - |
| | | | | 60 | | | 13.40 | 1.340 | 1600 | 0.28 | 3.65 | 0.365 | |
| | | | 3ø 400 | 50 | 4 | Cont. | 18.30 | 1.830 | 1350 | 0.34 | 4.33 | 0.433 | |
| | | | | 60 | | | 14.70 | 1.470 | 1600 | 0.30 | 3.65 | 0.365 | |
| 9IDG5(L)-60F□ | 9IDG5(L)-60F□-T | 60 | 3ø 415 | 50 | 4 | Cont. | 16.70 | 1.670 | 1350 | 0.29 | 4.33 | 0.433 | - |
| | | | | 60 | | | 13.40 | 1.340 | 1600 | 0.26 | 3.65 | 0.365 | |
| | | | 3ø 440 | 50 | 4 | Cont. | 18.50 | 1.850 | 1350 | 0.31 | 4.33 | 0.433 | |
| | | | | 60 | | | 15.00 | 1.500 | 1600 | 0.28 | 3.65 | 0.365 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name. 2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9IDG*-60FP | 9PBK□BH | kgfcm | 5.9 | 8.9 | 10.7 | 14.8 | 17.8 | 22.2 | 26.6 | 29.6 | 33.3 | 40.0 | 48.0 | 53.3 | 60.3 | 72.3 | 86.8 | 96.4 | 120.5 | 144.6 | 161.6 | 193.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 0.58 | 0.87 | 1.04 | 1.45 | 1.74 | 2.17 | 2.61 | 2.90 | 3.27 | 3.92 | 4.70 | 5.23 | 5.91 | 7.09 | 8.50 | 9.45 | 11.81 | 14.17 | 15.84 | 19.01 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9IDG*-60FH | 9HBK□BH | kgfcm | - | 8.9 | 10.7 | 14.8 | 17.8 | 22.2 | 26.6 | 29.6 | 33.3 | 40.0 | 48.0 | 53.3 | 60.3 | 72.3 | 86.8 | 96.4 | 120.5 | 144.6 | 161.6 | 193.9 | 215.5 | 258.6 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 0.87 | 1.04 | 1.45 | 1.74 | 2.17 | 2.61 | 2.90 | 3.27 | 3.92 | 4.70 | 5.23 | 5.91 | 7.09 | 8.50 | 8.50 | 9.45 | 11.81 | 14.17 | 15.84 | 19.01 | 21.12 | 25.34 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9IDG*-60FW | 9WD□BL/□BR/□BRL | kgfcm | 30.0 | 35.1 | 42.2 | 48.7 | 63.9 | 72.3 | 84.2 | 109.6 | 120.5 |
| | | N.m | 2.94 | 3.44 | 4.13 | 4.77 | 6.26 | 7.09 | 8.25 | 10.74 | 11.81 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9IDG*-60FWH | 9WHD□-030 | kgfcm | 12.7 | 18.4 | 23.7 | 33.3 | 42.1 | 48.2 | 56.1 | 69.0 | 78.9 | 87.7 | 102.9 |
| | | N.m | 1.25 | 1.80 | 2.32 | 3.26 | 4.12 | 4.72 | 5.50 | 6.76 | 7.73 | 8.59 | 10.08 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9IDG*-60FP | 9PBK□BH | kgfcm | 7.0 | 10.5 | 12.6 | 17.5 | 21.0 | 26.3 | 31.6 | 35.1 | 39.5 | 47.4 | 56.9 | 63.2 | 71.4 | 85.7 | 102.9 | 114.3 | 142.9 | 171.4 | 191.6 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 0.69 | 1.03 | 1.24 | 1.72 | 2.06 | 2.58 | 3.09 | 3.44 | 3.87 | 4.65 | 5.57 | 6.19 | 7.00 | 8.40 | 10.08 | 11.20 | 14.00 | 16.80 | 18.77 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9IDG*-60FH | 9HBK□BH | kgfcm | - | 10.5 | 12.6 | 17.5 | 21.0 | 26.3 | 31.6 | 35.1 | 39.5 | 47.4 | 56.9 | 63.2 | 71.4 | 85.7 | 102.9 | 114.3 | 142.9 | 171.4 | 191.6 | 229.9 | 255.4 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.03 | 1.24 | 1.72 | 2.06 | 2.58 | 3.09 | 3.44 | 3.87 | 4.65 | 5.57 | 6.19 | 7.00 | 8.40 | 10.08 | 11.20 | 14.00 | 16.80 | 18.77 | 22.53 | 25.03 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9IDG*-60FW | 9WD□BL/□BR/□BRL | kgfcm | 35.5 | 41.6 | 50.0 | 57.7 | 75.8 | 85.7 | 99.7 | 129.9 | 122.4 |
| | | N.m | 3.48 | 4.07 | 4.90 | 5.65 | 7.42 | 8.40 | 9.77 | 12.73 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9IDG*-60FWH | 9WHD□-030 | kgfcm | 15.1 | 21.8 | 28.1 | 39.5 | 49.9 | 57.1 | 66.5 | 81.7 | 93.5 | 103.9 | 121.9 |
| | | N.m | 1.48 | 2.14 | 2.75 | 3.87 | 4.89 | 5.60 | 6.52 | 8.01 | 9.16 | 10.18 | 11.95 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

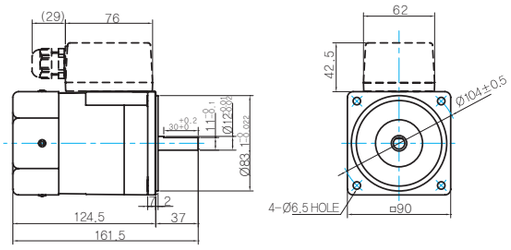
# B AC Motors

## Induction Motor 60W(□90mm)

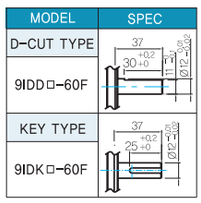
## Dimensions

### MOTOR ONLY

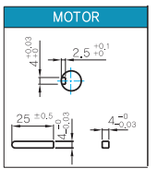
● MOTOR MODEL:
9IDD□-60F(-T) (GENERAL FAN)




● MOTOR OUTPUT SHAFT

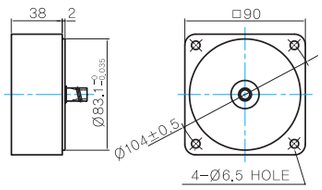
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-60F | |
| KEY TYPE | |
| 9IDK□-60F | |

● KEY SPEC

| MOTOR |
|---|
|  |

### INTER-DECIMAL GEARBOX

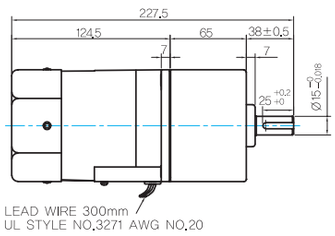
● MODEL:
9XD10□□



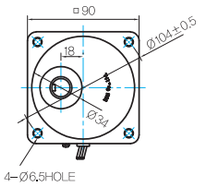

## GEARED MOTOR

### P TYPE GEARBOX

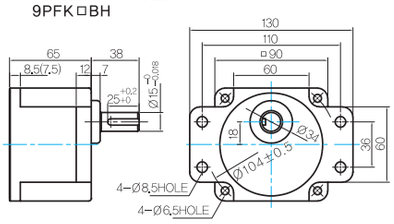
● MOTOR MODEL:
9IDG□-60FP (GENERAL FAN)



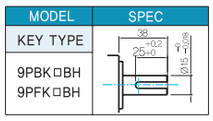

● GEARBOX MODEL:
9PBK□BH



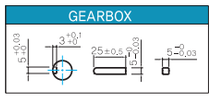

● GEARBOX MODEL:
9PFK□BH




● GEARBOX OUTPUT SHAFT

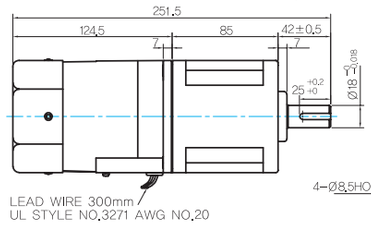
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

● KEY SPEC

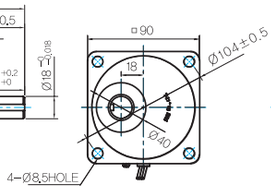
| GEARBOX |
|---|
|  |

### H TYPE GEARBOX

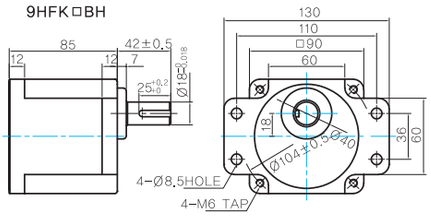
● MOTOR MODEL:
9IDG□-60FH (GENERAL FAN)



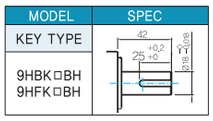

● GEARBOX MODEL:
9HBK□BH



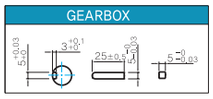

● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

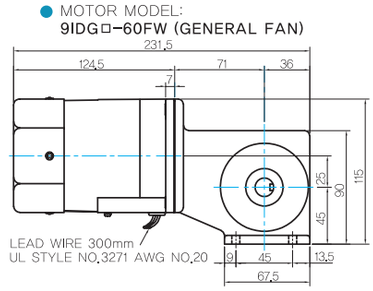
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

● KEY SPEC

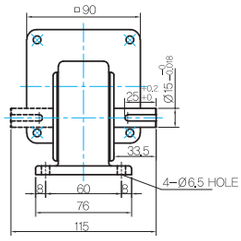
| GEARBOX |
|---|
|  |

### W TYPE GEARBOX

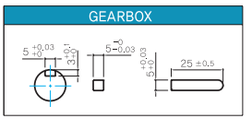
● MOTOR MODEL:
9IDG□-60FW (GENERAL FAN)




● GEARBOX MODEL:
9WD□BL/BR/BRL

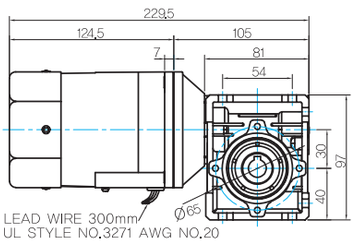



● KEY SPEC

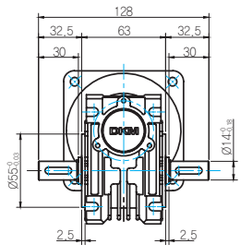
| GEARBOX |
|---|
|  |

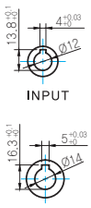
## WH TYPE GEARBOX

● MOTOR MODEL:
9IDG□-60FWH (GENERAL FAN)

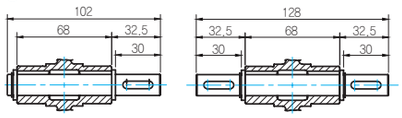



● GEARBOX MODEL:
9WHD□-030



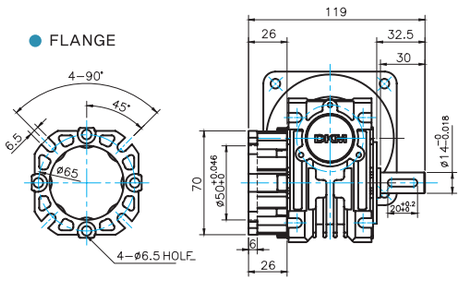




● SHAFT

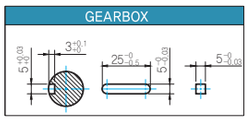



Unidirectional Bi-directional

● FLANGE




● KEY SPEC

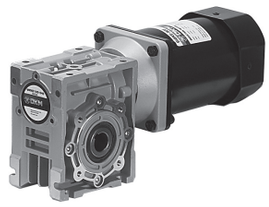



## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 2.65 |
| GEAR BOX | 9PB(F)K2BH - 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH - 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH - 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH - 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

## Motor Images

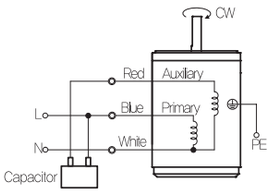
| 9IDD□-60F | 9IDD□-60F-T | 9IDG□-60FP+9PBK□BH | 9IDG□-60FP+9PFK□BH |
|---|---|---|---|
| | | | |
| **9IDG□-60FH+9HBK□BH** | **9IDG□-60FH+9HFK□BH** | **9IDG□-60FW+9WD□BL** | **9IDG□-60FWH+9WHD□-030** |
| | | |  |

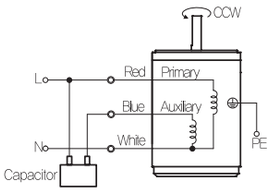
## Induction Motor 60W(□ 90mm)

### Connection Diagrams

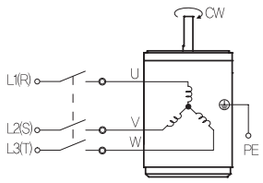
**Lead Wire Type**

**[Single Phase]**



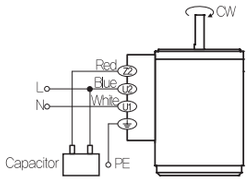

**[Three Phase]**

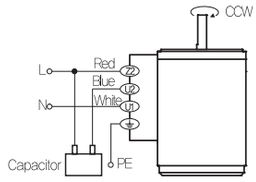



* CCW Direction:
Change any two connections between R, S and T.

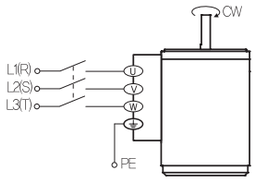
**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* CCW Direction:
Change any two connections between R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

## Induction Motor 90W(□ 90mm)

# 90W Induction Motor 90W(□ 90mm)

## Motor Specification

| Model (9IDG*-90F□(-T): Gear Type Shaft, 9IDD*-90F(-T): D-Cut Type Shaft, 9IDK*-90F(-T): Key Type Shaft) | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDG1(A)-90F□ | 9IDG1(A)-90F□-T | 90 | 1ø 110 | 60 | 4 | Cont. | 5.00 | 0.500 | 1600 | 1.80 | 5.48 | 0.548 | 20.0 / 250 |
| 9IDG2(D)-90F□ | 9IDG2(D)-90F□-T | 90 | 1ø 220 | 60 | 4 | Cont. | 5.00 | 0.500 | 1600 | 1.00 | 5.48 | 0.548 | 5.0 / 450 |
| 9IDGE-90F□ | 9IDGE-90F□-T | 90 | 1ø 220 | 50 | 4 | Cont. | 5.30 | 0.530 | 1300 | 0.70 | 6.74 | 0.674 | 5.0 / 450 |
| | | | 1ø 240 | | | | 6.30 | 0.630 | | 0.76 | 6.74 | 0.674 | |
| 9IDG3(G)-90F□ | 9IDG3(G)-90F□-T | 90 | 3ø 220 | 50 | 4 | Cont. | 20.50 | 2.050 | 1350 | 0.65 | 6.49 | 0.649 | – |
| | | | | 60 | | | 16.20 | 1.620 | 1600 | 0.60 | 5.48 | 0.548 | |
| | | | 3ø 230 | 50 | 4 | Cont. | 22.00 | 2.200 | 1350 | 0.68 | 6.49 | 0.649 | |
| | | | | 60 | | | 17.60 | 1.760 | 1600 | 0.63 | 5.48 | 0.548 | |
| 9IDG4(K)-90F□ | 9IDG4(K)-90F□-T | 90 | 3ø 380 | 50 | 4 | Cont. | 20.00 | 2.000 | 1350 | 0.35 | 6.49 | 0.649 | – |
| | | | | 60 | | | 15.70 | 1.570 | 1600 | 0.33 | 5.48 | 0.548 | |
| | | | 3ø 400 | 50 | 4 | Cont. | 21.80 | 2.180 | 1350 | 0.37 | 6.49 | 0.649 | |
| | | | | 60 | | | 17.30 | 1.730 | 1600 | 0.35 | 5.48 | 0.548 | |
| 9IDG5(L)-90F□ | 9IDG5(L)-90F□-T | 90 | 3ø 415 | 50 | 4 | Cont. | 20.50 | 2.050 | 1350 | 0.33 | 6.49 | 0.649 | – |
| | | | | 60 | | | 16.20 | 1.620 | 1600 | 0.31 | 5.48 | 0.548 | |
| | | | 3ø 440 | 50 | 4 | Cont. | 22.70 | 2.270 | 1350 | 0.36 | 6.49 | 0.649 | |
| | | | | 60 | | | 18.10 | 1.810 | 1600 | 0.33 | 5.48 | 0.548 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name. 2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9IDG*-90FP | 9PBK□BH | kgfcm | 8.9 | 13.3 | 16.0 | 22.2 | 26.6 | 33.3 | 39.9 | 44.4 | 50.0 | 60.0 | 72.0 | 80.0 | 90.4 | 108.5 | 130.2 | 144.6 | 180.8 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 0.87 | 1.30 | 1.57 | 2.17 | 2.61 | 3.26 | 3.91 | 4.35 | 4.90 | 5.88 | 7.06 | 7.84 | 8.86 | 10.63 | 12.76 | 14.17 | 17.72 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9IDG*-90FH | 9HBK□BH | kgfcm | – | 13.3 | 16.0 | 22.2 | 26.6 | 33.3 | 39.9 | 44.4 | 50.0 | 60.0 | 72.0 | 80.0 | 90.4 | 108.5 | 130.2 | 144.6 | 180.8 | 217.0 | 242.4 | 290.9 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.30 | 1.57 | 2.17 | 2.61 | 3.26 | 3.91 | 4.35 | 4.90 | 5.88 | 7.06 | 7.84 | 8.86 | 10.63 | 12.76 | 14.17 | 17.72 | 21.26 | 23.76 | 28.51 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9IDG*-90FW | 9WD□BL/□BR/□BRL | kgfcm | 44.9 | 52.6 | 63.3 | 73.0 | 95.9 | 108.5 | 126.2 | 142.9 | 122.4 |
| | | N.m | 4.40 | 5.15 | 6.20 | 7.15 | 9.40 | 10.63 | 12.37 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9IDG*-90FWH | 9WHD□-030 | kgfcm | 19.1 | 27.6 | 35.5 | 50.0 | 63.1 | 72.3 | 84.2 | 103.4 | 118.3 | 131.5 | 132.7 |
| | | N.m | 1.87 | 2.71 | 3.48 | 4.90 | 6.19 | 7.09 | 8.25 | 10.14 | 11.60 | 12.89 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9IDG*-90FHC | 9HC□□ | kgfcm | 60 | 80 | 100 | 120 | 160 | 200 | 240 | 320 | 400 | 480 | 640 | 800 | 900 | 960 |
| | | N.m | 5.88 | 7.84 | 9.8 | 11.8 | 15.7 | 19.6 | 23.5 | 31.4 | 39.2 | 47 | 62.7 | 78.4 | 88.2 | 94.1 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9IDG*-90FP | 9PBK□BH | kgfcm | 10.5 | 15.8 | 18.9 | 26.3 | 31.6 | 39.4 | 47.3 | 52.6 | 59.3 | 71.1 | 85.3 | 94.8 | 107.1 | 128.6 | 154.3 | 171.4 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.03 | 1.55 | 1.86 | 2.58 | 3.09 | 3.87 | 4.64 | 5.15 | 5.81 | 6.97 | 8.36 | 9.29 | 10.50 | 12.60 | 15.12 | 16.80 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9IDG*-90FH | 9HBK□BH | kgfcm | – | 15.8 | 18.9 | 26.3 | 31.6 | 39.4 | 47.3 | 52.6 | 59.3 | 71.1 | 85.3 | 94.8 | 107.1 | 128.6 | 154.3 | 171.4 | 214.3 | 257.1 | 287.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.55 | 1.86 | 2.58 | 3.09 | 3.87 | 4.64 | 5.15 | 5.81 | 6.97 | 8.36 | 9.29 | 10.50 | 12.60 | 15.12 | 16.80 | 21.00 | 25.20 | 28.16 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9IDG*-90FW | 9WD□BL/□BR/□BRL | kgfcm | 53.2 | 62.3 | 75.0 | 86.5 | 113.6 | 128.6 | 149.6 | 142.9 | 122.4 |
| | | N.m | 5.22 | 6.11 | 7.35 | 8.48 | 11.14 | 12.60 | 14.66 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9IDG*-90FWH | 9WHD□-030 | kgfcm | 22.6 | 32.7 | 42.1 | 59.2 | 74.8 | 85.7 | 99.7 | 122.6 | 140.3 | 155.8 | 132.7 |
| | | N.m | 2.21 | 3.21 | 4.12 | 5.80 | 7.33 | 8.40 | 9.77 | 12.01 | 13.75 | 15.27 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9IDG*-90FHC | 9HC□□ | kgfcm | 71.1 | 94.8 | 119 | 142 | 190 | 237 | 284 | 379 | 474 | 569 | 758 | 948 | 1067 | 1138 |
| | | N.m | 6.97 | 9.28 | 11.7 | 13.9 | 18.6 | 23.2 | 27.8 | 37.1 | 46.5 | 55.8 | 74.3 | 92.9 | 105 | 112 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

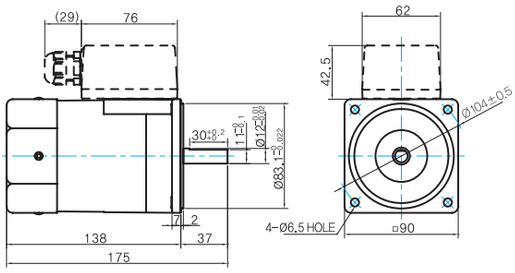
# B AC Motors

## Induction Motor 90W(□90mm)

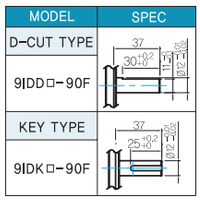
## Dimensions

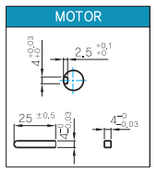
### MOTOR ONLY

● MOTOR MODEL:
9IDD□-90F(-T) (GENERAL FAN)



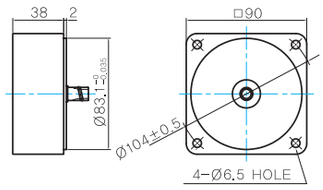

● MOTOR OUTPUT SHAFT ● KEY SPEC

| MODEL | SPEC |
|---|---|
| D-CUT TYPE<br>9IDD□-90F |  |
| KEY TYPE<br>9IDK□-90F | |

| MOTOR |
|---|
|  |

### INTER-DECIMAL GEARBOX

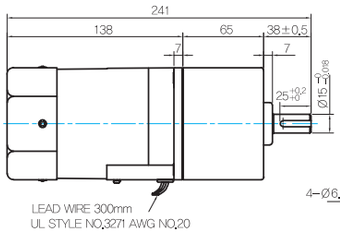
● MODEL: 9XD10□□



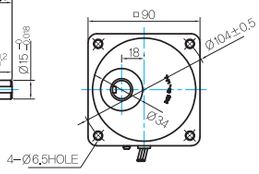

## GEARED MOTOR

### P TYPE GEARBOX

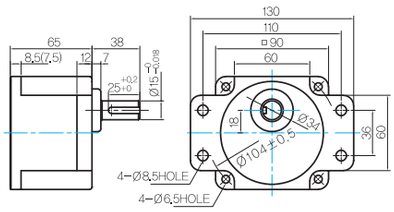
● MOTOR MODEL:
9IDG□-90FP (GENERAL FAN)



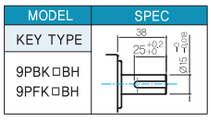

● GEARBOX MODEL:
9PBK□BH



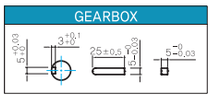

● GEARBOX MODEL:
9PFK□BH




● GEARBOX OUTPUT SHAFT

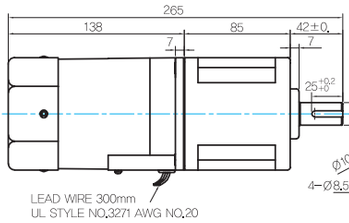
| MODEL | SPEC |
|---|---|
| KEY TYPE<br>9PBK□BH<br>9PFK□BH |  |

● KEY SPEC

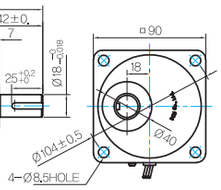
| GEARBOX |
|---|
|  |

### H TYPE GEARBOX

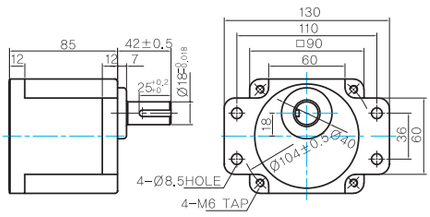
● MOTOR MODEL:
9IDG□-90FH (GENERAL FAN)



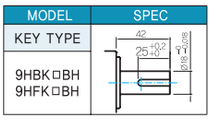

● GEARBOX MODEL:
9HBK□BH



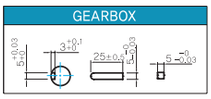

● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

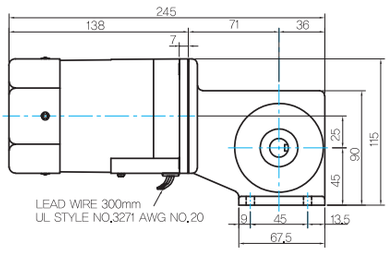
| MODEL | SPEC |
|---|---|
| KEY TYPE<br>9HBK□BH<br>9HFK□BH |  |

● KEY SPEC

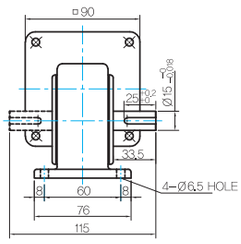
| GEARBOX |
|---|
|  |

### W TYPE GEARBOX

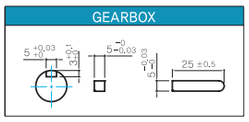
● MOTOR MODEL:
9IDG□-90FW (GENERAL FAN)




● GEARBOX MODEL:
9WD□BL/BR/BRL

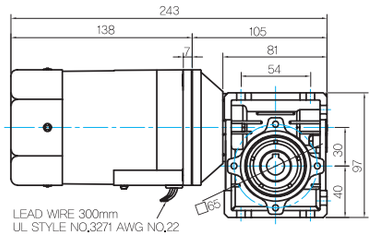



● KEY SPEC

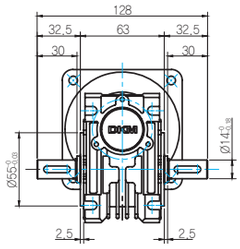
| GEARBOX |
|---|
|  |

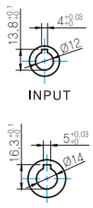
## WH TYPE GEARBOX

● MOTOR MODEL:
9IDG□-90FWH (GENERAL FAN)

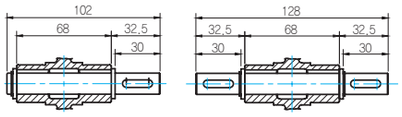



● GEARBOX MODEL:
9WHD□-030



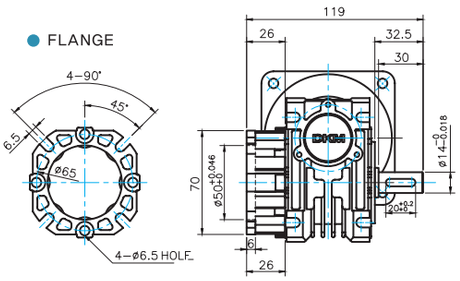




● SHAFT

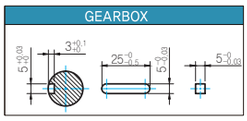



Unidirectional Bi-directional

● FLANGE

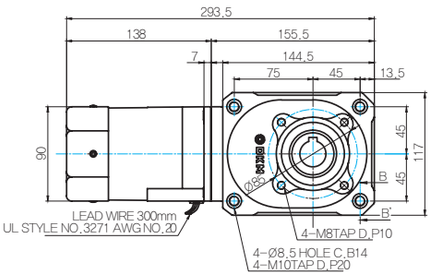



● KEY SPEC

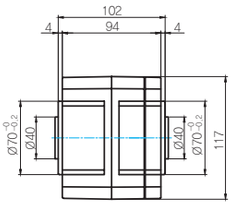



## HC TYPE GEARBOX

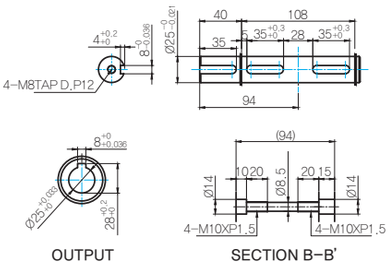
● MOTOR MODEL :
9IDG□-90FHC (GENERAL FA N)



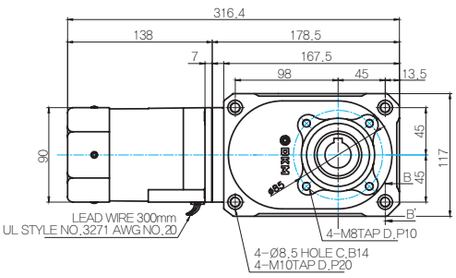

● GEARBOX MODEL:
9HC(15 ~ 60)□



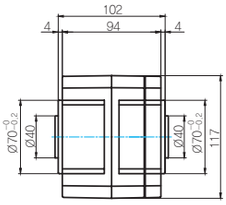

● SHAFT



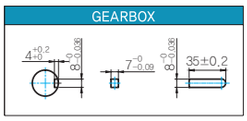

● MOTOR MODEL :
9IDG□-90FHC (GENERAL FAN)




● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9PB(F)K2BH - 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH - 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH - 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH - 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

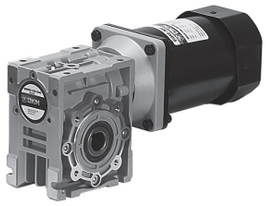
* The output flange and shaft are sold separately

# B AC Motors

## Induction Motor 90W(□90mm)

### Motor Images

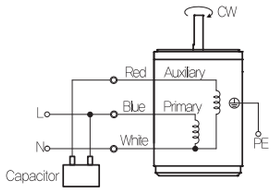
| 9IDD□-90F | 9IDD□-90F-T | 9IDG□-90FP+9PBK□BH | 9IDG□-90FP+9PFK□BH |
|---|---|---|---|
| | | | |

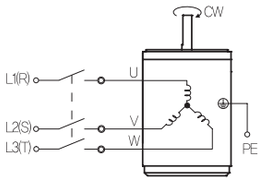
| 9IDG□-90FH+9HBK□BH | 9IDG□-90FH+9HFK□BH | 9IDG□-90FW+9WD□BL | 9IDG□-90FWH+9WHD□-030 |
|---|---|---|---|
| | | |  |

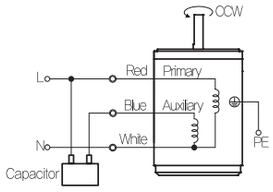
| 9IDG□-90FHC+9HC□□ |
|---|
| |

### Connection Diagrams

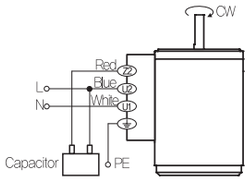
| Lead Wire Type | | Terminal Box Type | |
|---|---|---|---|
| [Single Phase] | [Three Phase] | [Single Phase] | [Three Phase] |

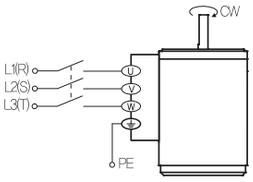


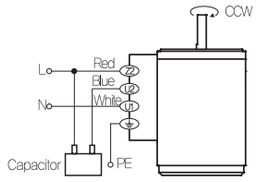




* CCW Direction:
Change any two connections between R, S and T.




* CCW Direction:
Change any two connections between R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 120W Induction Motor 120W(□90mm)

## Motor Specification

| Model (9IDG*-120F□(-T): Gear Type Shaft; 9IDD*-120F(-T): D-Cut Type Shaft; 9IDK*-120F(-T): Key Type Shaft) | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDG1(A)-120F□ | 9IDG1(A)-120F□-T | 120 | 1ø 110 | 60 | 4 | Cont. | 6.50 | 0.650 | 1600 | 2.00 | 7.31 | 0.731 | 25.0 / 250 |
| 9IDG2(D)-120F□ | 9IDG2(D)-120F□-T | 120 | 1ø 220 | 60 | 4 | Cont. | 6.20 | 0.620 | 1600 | 1.04 | 7.31 | 0.731 | 6.0 / 450 |
| 9IDGE-120F□ | 9IDGE-120F□-T | 120 | 1ø 220 | 50 | 4 | Cont. | 6.40 | 0.640 | 1250 | 0.90 | 9.35 | 0.935 | 6.0 / 450 |
| | | | 1ø 240 | | | | 7.50 | 0.750 | | 1.00 | 9.35 | 0.935 | |
| 9IDG3(G)-120F□ | 9IDG3(G)-120F□-T | 120 | 3ø 220 | 50 | 4 | Cont. | 24.40 | 2.440 | 1300 | 0.88 | 8.99 | 0.899 | – |
| | | | | 60 | | | 20.00 | 2.000 | 1600 | 0.71 | 7.31 | 0.731 | |
| | | | 3ø 230 | 50 | 4 | Cont. | 27.00 | 2.700 | 1350 | 0.86 | 8.66 | 0.866 | |
| | | | | 60 | | | 21.70 | 2.170 | 1600 | 0.76 | 7.31 | 0.731 | |
| 9IDG4(K)-120F□ | 9IDG4(K)-120F□-T | 120 | 3ø 380 | 50 | 4 | Cont. | 24.30 | 2.430 | 1300 | 0.50 | 8.99 | 0.899 | – |
| | | | | 60 | | | 19.90 | 1.990 | 1600 | 0.41 | 7.31 | 0.731 | |
| | | | 3ø 400 | 50 | 4 | Cont. | 27.10 | 2.710 | 1350 | 0.49 | 8.66 | 0.866 | |
| | | | | 60 | | | 21.90 | 2.190 | 1600 | 0.43 | 7.31 | 0.731 | |
| 9IDG5(L)-120F□ | 9IDG5(L)-120F□-T | 120 | 3ø 415 | 50 | 4 | Cont. | 24.30 | 2.430 | 1300 | 0.47 | 8.99 | 0.899 | – |
| | | | | 60 | | | 19.90 | 1.990 | 1600 | 0.37 | 7.31 | 0.731 | |
| | | | 3ø 440 | 50 | 4 | Cont. | 27.50 | 2.750 | 1350 | 0.47 | 8.66 | 0.866 | |
| | | | | 60 | | | 22.20 | 2.220 | 1600 | 0.40 | 7.31 | 0.731 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name. 2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9IDG*-120FP | 9PBK□BH | kgfcm | 11.8 | 17.8 | 21.3 | 29.6 | 35.5 | 44.4 | 53.3 | 59.2 | 66.7 | 80.0 | 96.0 | 106.7 | 120.5 | 144.6 | 173.6 | 192.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.16 | 1.74 | 2.09 | 2.90 | 3.48 | 4.35 | 5.22 | 5.80 | 6.53 | 7.84 | 9.41 | 10.45 | 11.81 | 14.17 | 17.01 | 18.90 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9IDG*-120FH | 9HBK□BH | kgfcm | – | 17.8 | 21.3 | 29.6 | 35.5 | 44.4 | 53.3 | 59.2 | 66.7 | 80.0 | 96.0 | 106.7 | 120.5 | 144.6 | 173.6 | 192.9 | 241.1 | 289.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.74 | 2.09 | 2.90 | 3.48 | 4.35 | 5.22 | 5.80 | 6.53 | 7.84 | 9.41 | 10.45 | 11.81 | 14.17 | 17.01 | 18.90 | 23.62 | 28.35 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9IDG*-120FW | 9WD□BL/□ | kgfcm | 59.9 | 70.1 | 84.4 | 97.3 | 127.8 | 144.6 | 153.1 | 142.9 | 122.4 |
| | BR/□BRL | N.m | 5.87 | 6.87 | 8.27 | 9.54 | 12.53 | 14.17 | 15.00 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9IDG*-120FWH | 9WHD | kgfcm | 25.4 | 36.8 | 47.3 | 66.6 | 84.2 | 96.4 | 112.2 | 137.9 | 157.8 | 163.3 | 132.7 |
| | □-030 | N.m | 2.49 | 3.61 | 4.64 | 6.53 | 8.25 | 9.45 | 11.00 | 13.52 | 15.46 | 16.00 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9IDG*-120FHC | 9HC□□ | kgfcm | 80 | 107 | 133 | 160 | 213 | 267 | 320 | 427 | 533 | 640 | 853 | 1067 | 1200 | 1280 |
| | | N.m | 7.84 | 10.5 | 13 | 15.7 | 20.9 | 26.2 | 31.4 | 41.8 | 52.2 | 62.7 | 83.6 | 105 | 118 | 125 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9IDG*-120FP | 9PBK□BH | kgfcm | 14.0 | 21.0 | 25.2 | 35.1 | 42.1 | 52.6 | 63.1 | 70.1 | 79.0 | 94.8 | 113.8 | 126.4 | 142.9 | 171.4 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.37 | 2.06 | 2.47 | 3.44 | 4.12 | 5.15 | 6.19 | 6.87 | 7.74 | 9.29 | 11.15 | 12.39 | 14.00 | 16.80 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9IDG*-120FH | 9HBK□BH | kgfcm | – | 21.0 | 25.2 | 35.1 | 42.1 | 52.6 | 63.1 | 70.1 | 79.0 | 94.8 | 113.8 | 126.4 | 142.9 | 171.4 | 205.7 | 228.6 | 285.7 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 2.06 | 2.47 | 3.44 | 4.12 | 5.15 | 6.19 | 6.87 | 7.74 | 9.29 | 11.15 | 12.39 | 14.00 | 16.80 | 20.16 | 22.40 | 28.00 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9IDG*-120FW | 9WD□BL/□ | kgfcm | 71.0 | 83.1 | 100.0 | 115.3 | 151.5 | 170.0 | 153.1 | 142.9 | 122.4 |
| | BR/□BRL | N.m | 6.96 | 8.15 | 9.80 | 11.30 | 14.85 | 16.66 | 15.00 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9IDG*-120FWH | 9WHD | kgfcm | 30.1 | 43.6 | 56.1 | 79.0 | 99.7 | 114.3 | 133.0 | 163.5 | 173.5 | 163.3 | 132.7 |
| | □-030 | N.m | 2.95 | 4.28 | 5.50 | 7.74 | 9.77 | 11.20 | 13.03 | 16.02 | 17.00 | 16.00 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9IDG*-120FHC | 9HC□□ | kgfcm | 94.8 | 126 | 158 | 190 | 253 | 316 | 379 | 506 | 632 | 758 | 1011 | 1264 | 1422 | 1517 |
| | | N.m | 9.29 | 12.3 | 15.5 | 18.6 | 24.8 | 31 | 37.1 | 49.6 | 61.9 | 74.3 | 99.1 | 124 | 139 | 149 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

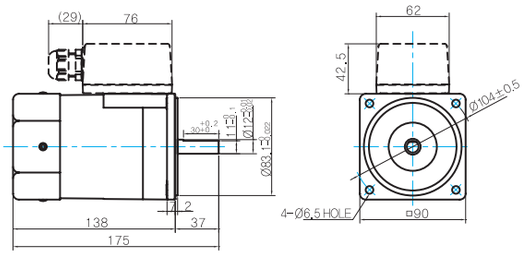
# B AC Motors

## Induction Motor 120W(□90mm)

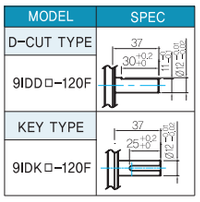
## Dimensions

### MOTOR ONLY

● MOTOR MODEL:
9IDD□-120F(-T) (GENERAL FAN)

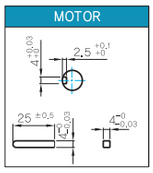



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-120F | |
| KEY TYPE | |
| 9IDK□-120F | |

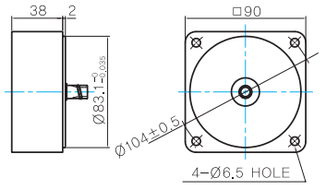
● KEY SPEC

MOTOR



### INTER-DECIMAL GEARBOX

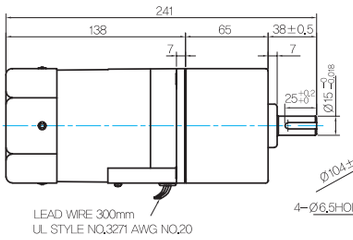
● MODEL:
9XD10□□



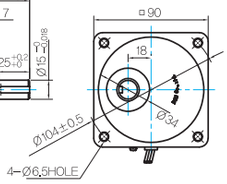

### GEARED MOTOR

### P TYPE GEARBOX

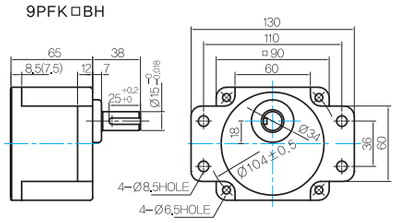
● MOTOR MODEL:
9IDG□-120FP (GENERAL FAN)



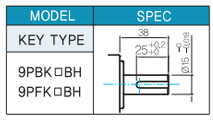

● GEARBOX MODEL:
9PBK□BH




● GEARBOX MODEL:
9PFK□BH

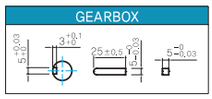



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

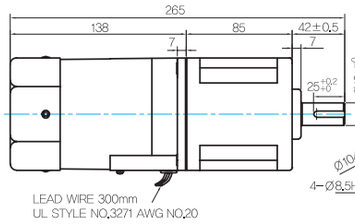
● KEY SPEC

GEARBOX

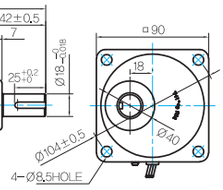


### H TYPE GEARBOX

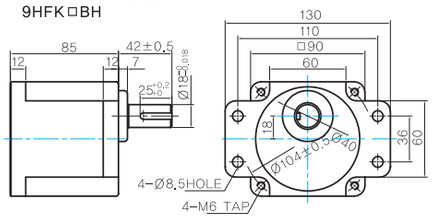
● MOTOR MODEL:
9IDG□-120FH (GENERAL FAN)



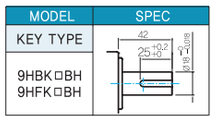

● GEARBOX MODEL:
9HBK□BH




● GEARBOX MODEL:
9HFK□BH

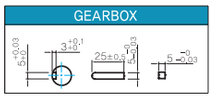



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

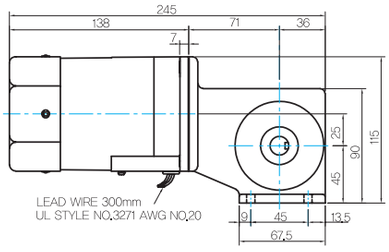
● KEY SPEC

GEARBOX

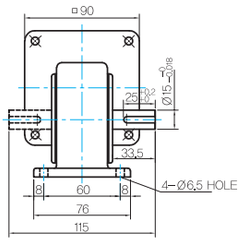


### W TYPE GEARBOX

● MOTOR MODEL:
9IDG□-120FW (GENERAL FAN)

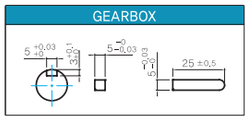



● GEARBOX MODEL:
9WD□BL/BR/BRL



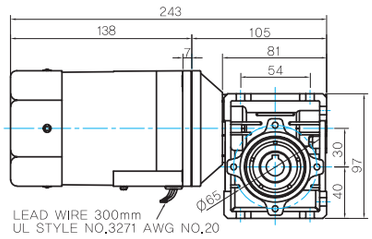

● KEY SPEC

GEARBOX

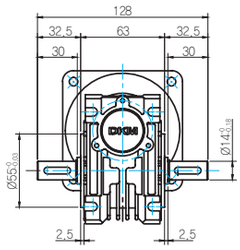


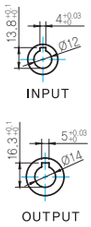
## WH TYPE GEARBOX

● MOTOR MODEL:
9IDG□-120FWH (GENERAL FAN)

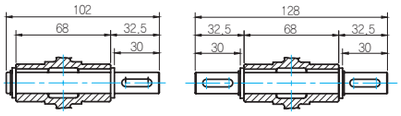



● GEARBOX MODEL:
9WHD□-030



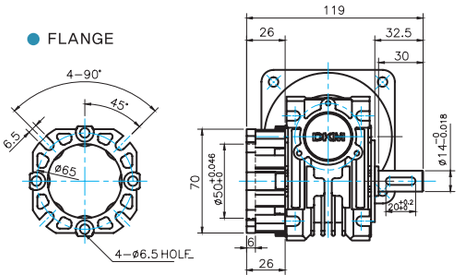




● SHAFT

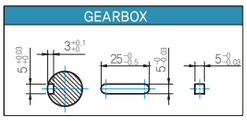



Unidirectional Bi-directional

● FLANGE

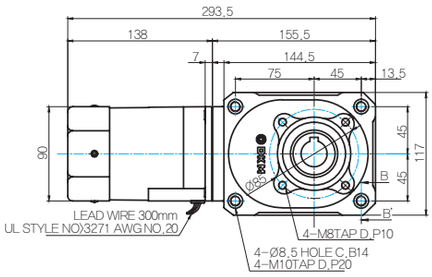



● KEY SPEC

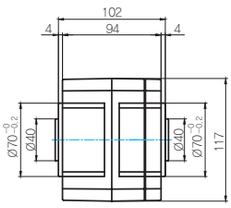



## HC TYPE GEARBOX

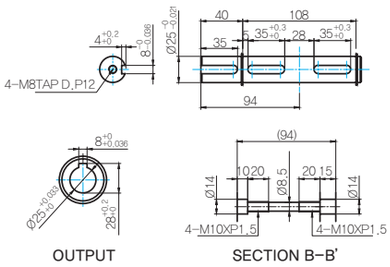
● MOTOR MODEL :
9IDG□-120FHC (GENERAL FAN)



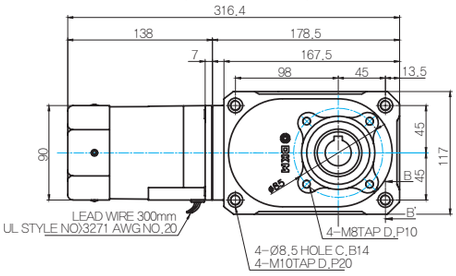

● GEARBOX MODEL:
9HC(15 ~ 60)□



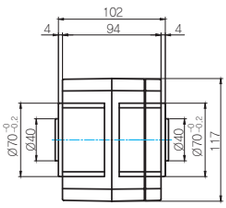

● SHAFT



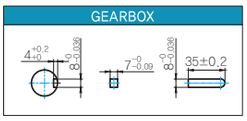

● MOTOR MODEL :
9IDG□-120FHC (GENERAL FAN)




● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC




## WEIGHT

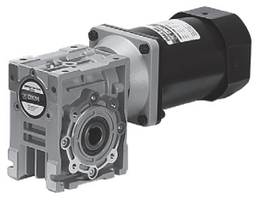
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9PB(F)K2BH - 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH - 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH - 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH - 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

# B AC Motors

## Induction Motor 120W(□90mm)

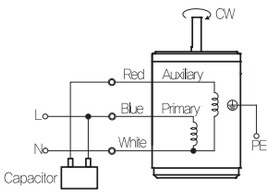
## Motor Images

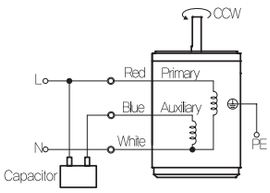
| 9IDD□-120F | 9IDD□-120F-T | 9IDG□-120FP+9PBK□BH | 9IDG□-120FP+9PFK□BH |
|---|---|---|---|
| | | | |
| **9IDG□-120FH+9HBK□BH** | **9IDG□-120FH+9HFK□BH** | **9IDG□-120FW+9WD□BL** | **9IDG□-120FWH+9WHD□-030** |
| | | |  |
| **9IDG□-120FHC+9HC□□** | | | |
| | | | |

## Connection Diagrams

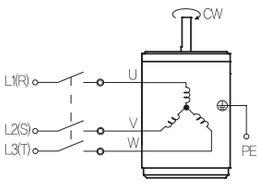
| Lead Wire Type | Terminal Box Type |
|---|---|

**[Single Phase]**



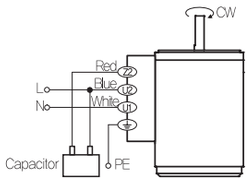



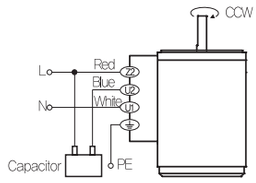

**[Three Phase]**



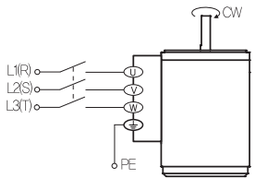

* CCW Direction:
Change any two connections between R, S and T.

**[Single Phase]**




**[Three Phase]**




* CCW Direction:
Change any two connections between R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 150W Induction Motor 150W(□ 90mm)

## Motor Specification

| Model<br>9IDG*-150F□(-T): Gear Type Shaft<br>9IDD*-150F(-T): D-Cut Type Shaft<br>9IDK*-150F(-T): Key Type Shaft<br>Lead Wire Type | Terminal Box Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9IDG3(G)-150F□ | 9IDG3(G)-150F□-T | 150 | 3ø 220 | 50 | 4 | Cont. | 25.70 | 2.570 | 1300 | 0.94 | 11.24 | 1.124 | - |
| | | | | 60 | | | 20.50 | 2.050 | 1550 | 0.84 | 9.43 | 0.943 | |
| | | | 3ø 230 | 50 | 4 | Cont. | 27.50 | 2.750 | 1300 | 1.02 | 11.24 | 1.124 | |
| | | | | 60 | | | 22.20 | 2.220 | 1550 | 0.89 | 9.43 | 0.943 | |
| 9IDG4(K)-150F□ | 9IDG4(K)-150F□-T | 150 | 3ø 380 | 50 | 4 | Cont. | 25.10 | 2.510 | 1300 | 0.53 | 11.24 | 1.124 | - |
| | | | | 60 | | | 20.00 | 2.000 | 1550 | 0.48 | 9.43 | 0.943 | |
| | | | 3ø 400 | 50 | 4 | Cont. | 27.30 | 2.730 | 1300 | 0.57 | 11.24 | 1.124 | |
| | | | | 60 | | | 22.00 | 2.200 | 1550 | 0.50 | 9.43 | 0.943 | |
| 9IDG5(L)-150F□ | 9IDG5(L)-150F□-T | 150 | 3ø 415 | 50 | 4 | Cont. | 25.00 | 2.500 | 1300 | 0.51 | 11.24 | 1.124 | - |
| | | | | 60 | | | 22.10 | 2.210 | 1550 | 0.45 | 9.43 | 0.943 | |
| | | | 3ø 440 | 50 | 4 | Cont. | 27.20 | 2.720 | 1300 | 0.55 | 11.24 | 1.124 | |
| | | | | 60 | | | 22.40 | 2.240 | 1550 | 0.48 | 9.43 | 0.943 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name. 2) The phase & voltage code G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9IDG*-150FH | 9HBK□BH | kgfcm | 22.9 | 27.5 | 38.2 | 45.8 | 57.3 | 68.7 | 76.3 | 86.0 | 103.2 | 123.9 | 137.6 | 155.5 | 186.6 | 224.0 | 248.8 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.24 | 2.69 | 3.74 | 4.49 | 5.61 | 6.73 | 7.48 | 8.43 | 10.11 | 12.14 | 13.49 | 15.24 | 18.29 | 21.95 | 24.39 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9IDG*-150FWH | 9WHD□-030 | kgfcm | 32.8 | 47.5 | 61.1 | 86.0 | 108.6 | 124.4 | 144.8 | 178.0 | 173.5 | 163.3 | 132.7 | - |
| | | N.m | 3.21 | 4.66 | 5.99 | 8.42 | 10.64 | 12.19 | 14.19 | 17.44 | 17.00 | 16.00 | 13.00 | - |
| | 9WHD□-040 | kgfcm | - | - | - | - | - | - | - | - | 230.0 | 257.9 | 295.0 | 270.0 |
| | | N.m | - | - | - | - | - | - | - | - | 22.54 | 25.27 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9IDG*-150FHC | 9HC□□ | kgfcm | 103 | 138 | 172 | 206 | 275 | 344 | 413 | 550 | 688 | 826 | 1101 | 1376 | 1548 | 1651 |
| | | N.m | 10.1 | 13.5 | 16.9 | 20.2 | 27 | 33.7 | 40.5 | 53.9 | 67.4 | 80.9 | 108 | 135 | 152 | 162 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9IDG*-150FH | 9HBK□BH | kgfcm | 27.3 | 32.8 | 45.5 | 54.6 | 68.3 | 81.9 | 91.0 | 102.6 | 123.1 | 147.7 | 164.1 | 185.4 | 222.5 | 267.0 | 296.7 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.68 | 3.21 | 4.46 | 5.35 | 6.69 | 8.03 | 8.92 | 10.05 | 12.06 | 14.47 | 16.08 | 18.17 | 21.81 | 26.17 | 29.08 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 | 15 |
| 9IDG*-150FWH | 9WHD□-030 | kgfcm | 39.1 | 56.6 | 72.8 | 102.5 | 129.5 | 148.3 | 172.6 | 183.7 | 173.5 | 163.3 | 132.7 | - |
| | | N.m | 3.83 | 5.55 | 7.14 | 10.04 | 12.69 | 14.54 | 16.92 | 18.00 | 17.00 | 16.00 | 13.00 | - |
| | 9WHD□-040 | kgfcm | - | - | - | - | - | - | - | - | 274.2 | 307.5 | 295.0 | 270.0 |
| | | N.m | - | - | - | - | - | - | - | - | 26.87 | 30.13 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9IDG*-150FHC | 9HC□□ | kgfcm | 123 | 164 | 205 | 246 | 328 | 410 | 492 | 656 | 820 | 984 | 1313 | 1641 | 1800 | 1800 |
| | | N.m | 12.1 | 16.1 | 20.1 | 24.1 | 32.1 | 40.2 | 48.2 | 64.3 | 80.4 | 96.4 | 129 | 161 | 176 | 176 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

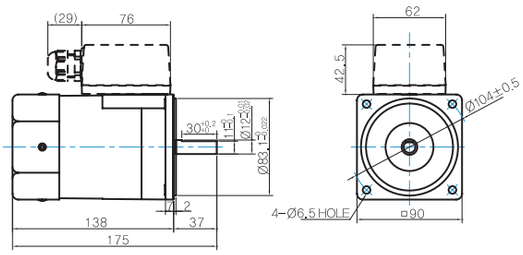
# B AC Motors

## Induction Motor 150W(□ 90mm)

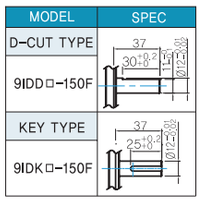
## Dimensions

### MOTOR ONLY

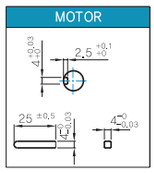
● MOTOR MODEL:
9IDD□-150F(-T) (GENERAL FAN)




● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-150F | |
| KEY TYPE | |
| 9IDK□-150F | |

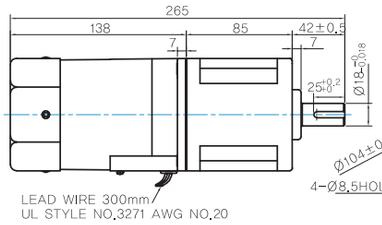
● KEY SPEC

| MOTOR |
|---|
|  |

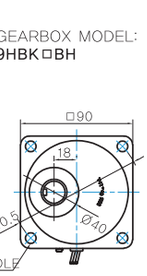
### GEARED MOTOR

### H TYPE GEARBOX

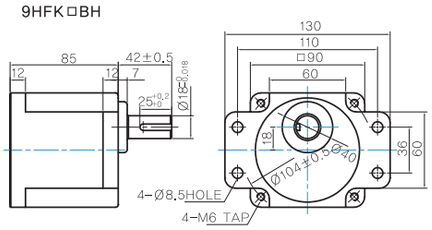
● MOTOR MODEL:
9IDG□-150FH (GENERAL FAN)



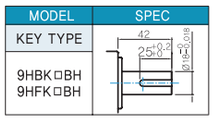

● GEARBOX MODEL:
9HBK□BH



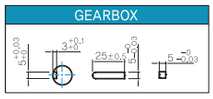

● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

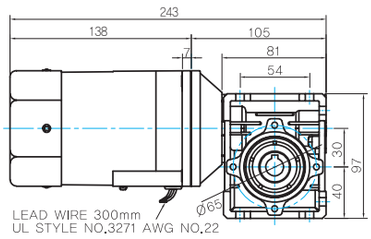
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

● KEY SPEC

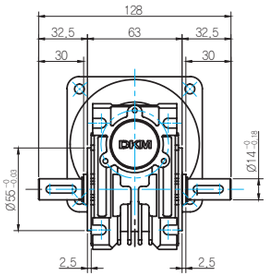
| GEARBOX |
|---|
|  |

### WH TYPE GEARBOX

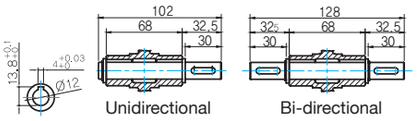
● MOTOR MODEL:
9IDG□-150FWH (GENERAL FAN)



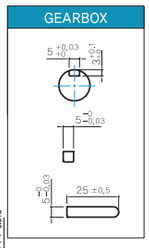

● GEARBOX MODEL:
9WHD□-030



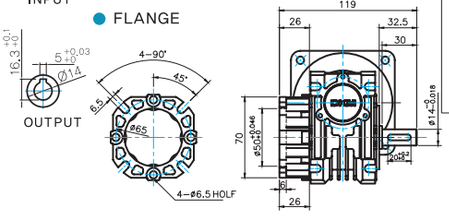

● SHAFT



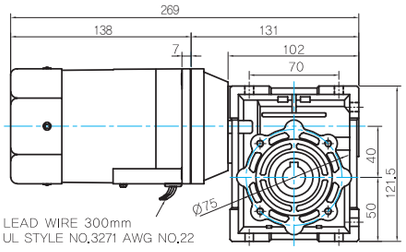

● KEY SPEC

| GEARBOX |
|---|
|  |

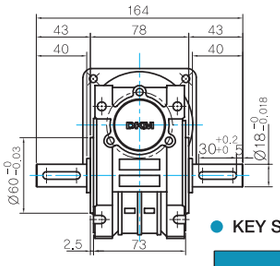
● FLANGE



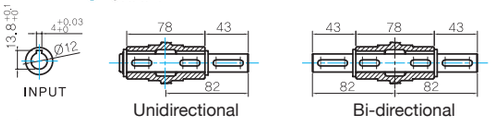

● MOTOR MODEL:
9IDG□-150FWH (GENERAL FAN)

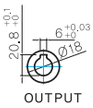



● GEARBOX MODEL:
9WHD□-040

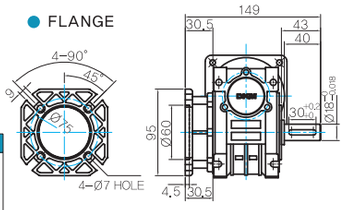



● SHAFT

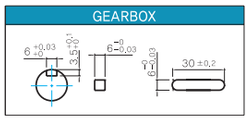



● FLANGE

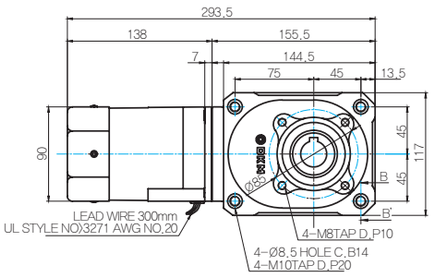



● KEY SPEC

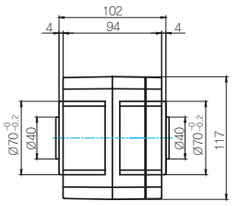
| GEARBOX |
|---|
|  |

## HC TYPE GEARBOX

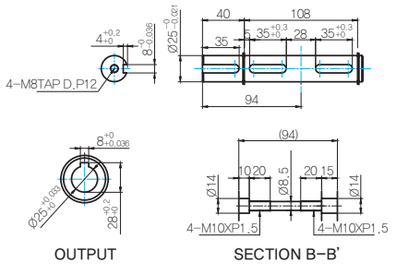
- MOTOR MODEL :
  9IDG□-150FHC (GENERAL FA N)



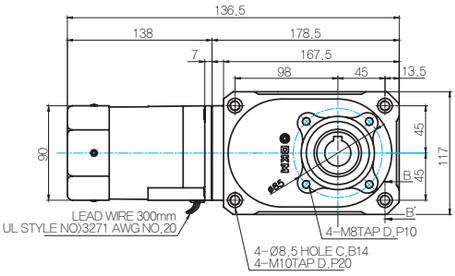

- GEARBOX MODEL:
  9HC(15 ~ 60)□



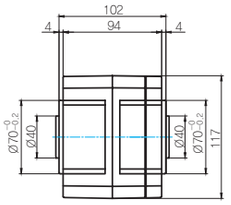

- SHAFT




- MOTOR MODEL :
  9IDG□-150FHC (GENERAL FA N)

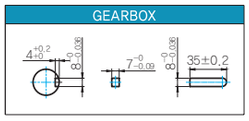



- GEARBOX MODEL :
  9HC(80 ~ 240)□




- KEY SPEC

GEARBOX




## WEIGHT

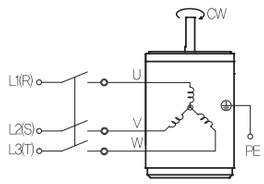
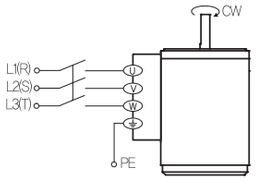
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WHD□-030 | 1.2 |
| | 9WHD□-040 | 2.1 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

## Motor Images

| 9IDD□-150F | 9IDD□-150F-T | 9IDG□-150FH+9HBK□BH | 9IDG□-150FH+9HFK□BH | 9IDG□-150FWH+9WHD□-030 | 9IDG□-150FHC+9HC□□ |
|---|---|---|---|---|---|
| | | | | | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  * CCW Direction: Change any two connections between R, S and T. |  * CCW Direction: Change any two connections between R, S and T. |



1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.

# 180W Induction Motor 180W(□90mm)

## Motor Specification

| Model<br>9IDG*-180F□(-T): Gear Type Shaft<br>9IDD*-180F(-T): D-Cut Type Shaft<br>9IDK*-180F(-T): Key Type Shaft | | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | | | | | | | | | | | | |
| 9IDG1(A)-180F□ | 9IDG1(A)-180F□-T | 180 | 1ø 110 | 60 | 4 | Cont. | 7.40 | 0.740 | 1600 | 3.00 | 10.96 | 1.096 | 30.0 / 250 |
| 9IDG2(D)-180F□ | 9IDG2(D)-180F□-T | 180 | 1ø 220 | 60 | 4 | Cont. | 7.80 | 0.780 | 1600 | 1.50 | 10.96 | 1.096 | 8.0 / 450 |
| 9IDGE-180F□ | 9IDGE-180F□-T | 180 | 1ø 220 | 50 | 4 | Cont. | 8.10 | 0.810 | 1250 | 1.50 | 14.03 | 1.403 | 8.0 / 450 |
| | | | 1ø 240 | | | | 9.70 | 0.970 | 1300 | 1.60 | 13.49 | 1.349 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9IDG*-180FH | 9HBK□BH | kgfcm | 26.6 | 32.0 | 44.4 | 53.3 | 66.6 | 79.9 | 88.8 | 100.0 | 120.0 | 144.0 | 160.0 | 180.8 | 217.0 | 260.4 | 289.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.61 | 3.13 | 4.35 | 5.22 | 6.52 | 7.83 | 8.70 | 9.80 | 11.76 | 14.11 | 15.68 | 17.72 | 21.26 | 25.51 | 28.35 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9IDG*-180FWH | 9WHD□-030 | kgfcm | 38.1 | 55.2 | 71.0 | 99.9 | 126.2 | 144.6 | 168.3 | 183.7 | 173.5 | 163.3 | 132.7 | - |
| | | N.m | 3.74 | 5.41 | 6.96 | 9.79 | 12.37 | 14.17 | 16.49 | 18.00 | 17.00 | 16.00 | 13.00 | - |
| | 9WHD□-040 | kgfcm | - | - | - | - | - | - | - | - | 267.4 | 299.8 | 295.0 | 270.0 |
| | | N.m | - | - | - | - | - | - | - | - | 26.20 | 29.38 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9IDG*-180FHC | 9HC□□ | kgfcm | 120 | 160 | 200 | 240 | 320 | 400 | 480 | 640 | 800 | 960 | 1280 | 1600 | 1800 | 1800 |
| | | N.m | 11.8 | 15.7 | 19.6 | 23.5 | 31.4 | 39.2 | 47 | 62.7 | 78.4 | 94.1 | 125 | 157 | 176 | 176 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9IDG*-180FH | 9HBK□BH | kgfcm | 32.8 | 39.3 | 54.6 | 65.5 | 81.9 | 98.3 | 109.2 | 123.1 | 147.7 | 177.2 | 196.9 | 222.5 | 267.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 3.21 | 3.85 | 5.35 | 6.42 | 8.03 | 9.63 | 10.71 | 12.06 | 14.47 | 17.37 | 19.30 | 21.81 | 26.17 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9IDG*-180FWH | 9WHD□-030 | kgfcm | 46.9 | 68.0 | 87.4 | 123.0 | 155.4 | 178.0 | 204.1 | 183.7 | 173.5 | 163.3 | 132.7 | - |
| | | N.m | 4.60 | 6.66 | 8.56 | 12.05 | 15.23 | 17.45 | 20.00 | 18.00 | 17.00 | 16.00 | 13.00 | - |
| | 9WHD□-040 | kgfcm | - | - | - | - | - | - | - | - | 329.1 | 330.0 | 295.0 | 270.0 |
| | | N.m | - | - | - | - | - | - | - | - | 32.25 | 32.34 | 28.91 | 26.46 |

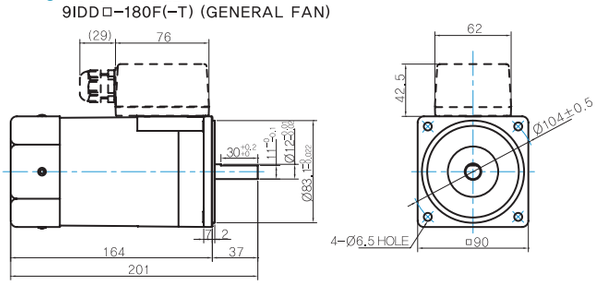
| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9IDG*-180FHC | 9HC□□ | kgfcm | 148 | 197 | 246 | 295 | 394 | 492 | 591 | 788 | 984 | 1181 | 1575 | 1800 | 1800 | 1800 |
| | | N.m | 14.5 | 19.3 | 24.1 | 28.9 | 38.6 | 48.2 | 57.9 | 77.2 | 96.4 | 116 | 154 | 176 | 176 | 176 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

# Dimensions

## MOTOR ONLY

● MOTOR MODEL:
9IDD□-180F(-T) (GENERAL FAN)

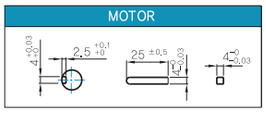



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE | |
| 9IDD□-180F | |
| KEY TYPE | |
| 9IDK□-180F | |

● KEY SPEC

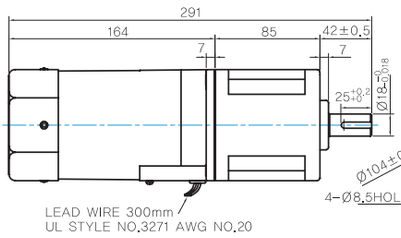
MOTOR



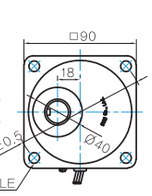
## GEARED MOTOR

## H TYPE GEARBOX

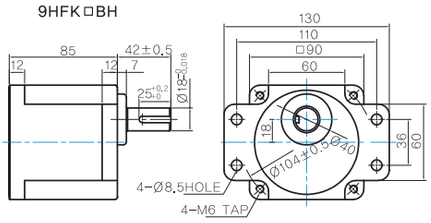
● MOTOR MODEL:
9IDG□-180FH (GENERAL FAN)




● GEARBOX MODEL:
9HBK□BH




● GEARBOX MODEL:
9HFK□BH

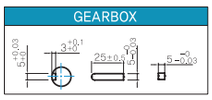



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE | |
| 9HBK□BH<br>9HFK□BH | |

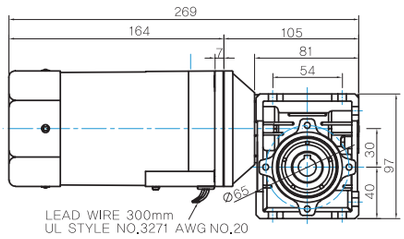
● KEY SPEC

GEARBOX

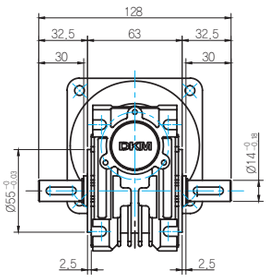


## WH TYPE GEARBOX

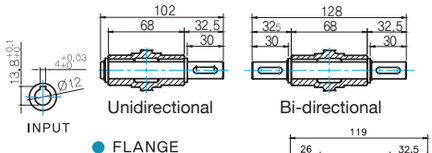
● MOTOR MODEL:
9IDG□-180FWH (GENERAL FAN)



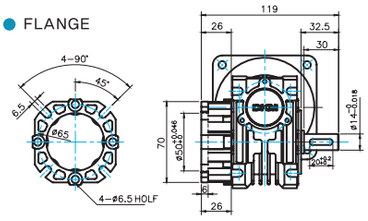

● GEARBOX MODEL:
9WHD□-030



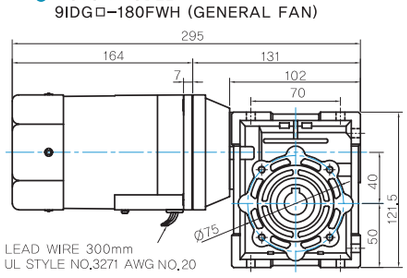

● SHAFT



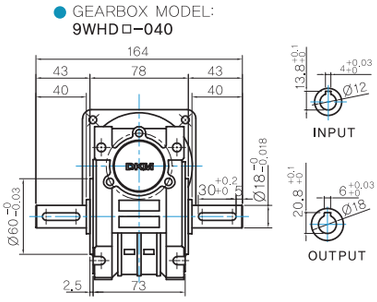

● FLANGE




● MOTOR MODEL:
9IDG□-180FWH (GENERAL FAN)

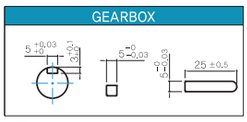



● GEARBOX MODEL:
9WHD□-040



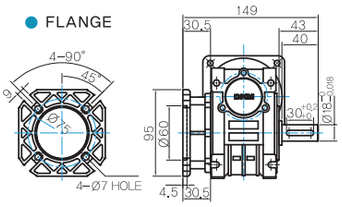

● KEY SPEC

GEARBOX



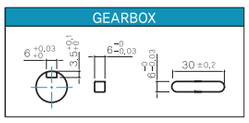
* The output flange and shaft are sold separately

● FLANGE

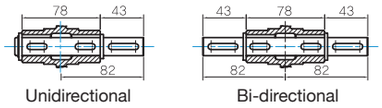



● KEY SPEC

GEARBOX



● SHAFT

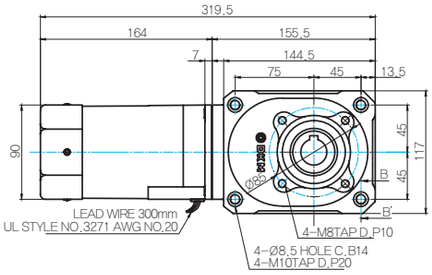


# B AC Motors

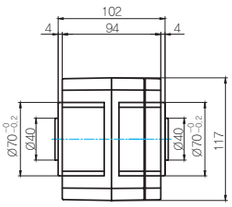
## Induction Motor 180W(□90mm)

### HC TYPE GEARBOX

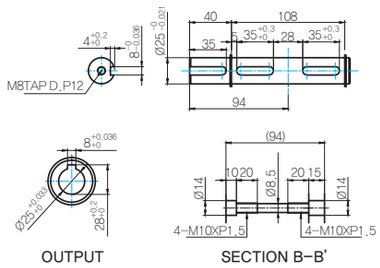
● MOTOR MODEL :
9IDG□-180FHC (GENERAL FAN)



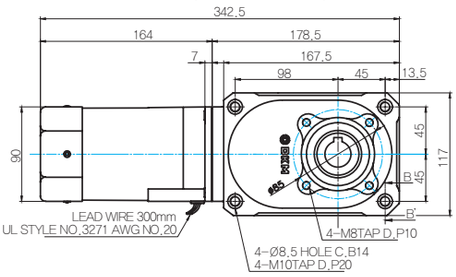

● GEARBOX MODEL:
9HC(15 ~ 60)□



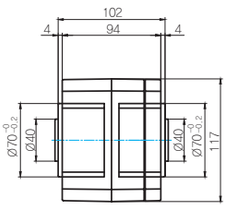

● SHAFT




● MOTOR MODEL :
9IDG□-180FHC (GENERAL FAN)

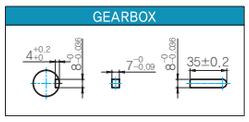



● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC

GEARBOX

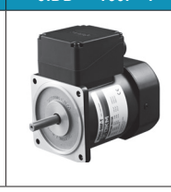



### WEIGHT

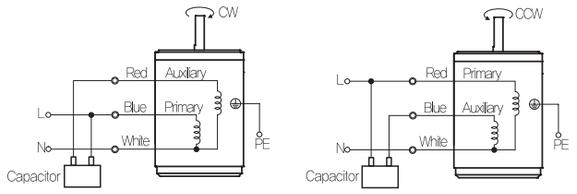
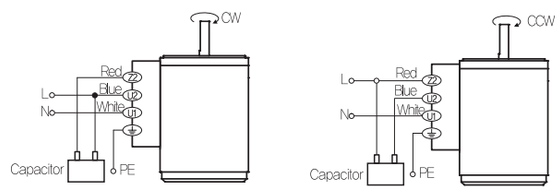
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WHD□-030 | 1.2 |
| | 9WHD□-040 | 2.1 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |

* The output flange and shaft are sold separately

## Motor Images

| 9IDD□-150F | 9IDD□-150F-T | 9IDG□-150FH+9HBK□BH | 9IDG□-150FH+9HFK□BH | 9IDG□-150FWH+9WHD□-030 | 9IDG□-180FHC+9HC□□ |
|---|---|---|---|---|---|
| |  | | | | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 200W Induction Motor 200W(□90mm)

## Motor Specification

| Model (9IDG*-200F□(-T): Gear Type Shaft; 9IDD*-200F(-T): D-Cut Type Shaft; 9IDK*-200F(-T): Key Type Shaft) | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDG3(G)-200F□ | 9IDG3(G)-200F□-T | 200 | 3ø 220 | 50 | 4 | Cont. | 36.10 | 3.610 | 1300 | 1.27 | 14.98 | 1.498 | – |
| | | | | 60 | | | 30.10 | 3.010 | 1550 | 1.17 | 12.57 | 1.257 | |
| | | | 3ø 230 | 50 | 4 | Cont. | 39.70 | 3.970 | 1300 | 1.33 | 14.98 | 1.498 | |
| | | | | 60 | | | 32.60 | 3.260 | 1550 | 1.21 | 12.57 | 1.257 | |
| 9IDG4(K)-200F□ | 9IDG4(K)-200F□-T | 200 | 3ø 380 | 50 | 4 | Cont. | 39.70 | 3.970 | 1300 | 0.74 | 14.98 | 1.498 | – |
| | | | | 60 | | | 31.10 | 3.110 | 1550 | 0.67 | 12.57 | 1.257 | |
| | | | 3ø 400 | 50 | 4 | Cont. | 41.20 | 4.120 | 1300 | 0.81 | 14.98 | 1.498 | |
| | | | | 60 | | | 35.10 | 3.510 | 1550 | 0.70 | 12.57 | 1.257 | |
| 9IDG5(L)-200F□ | 9IDG5(L)-200F□-T | 200 | 3ø 415 | 50 | 4 | Cont. | 38.40 | 3.840 | 1300 | 0.70 | 14.98 | 1.498 | – |
| | | | | 60 | | | 31.10 | 3.110 | 1550 | 0.62 | 12.57 | 1.257 | |
| | | | 3ø 440 | 50 | 4 | Cont. | 42.00 | 4.200 | 1300 | 0.76 | 14.98 | 1.498 | |
| | | | | 60 | | | 34.60 | 3.460 | 1550 | 0.66 | 12.57 | 1.257 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name. 2) The phase & voltage code G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9IDG*-200FH | 9HBK□BH | kgfcm | 30.5 | 36.6 | 50.9 | 61.1 | 76.3 | 91.6 | 101.8 | 114.7 | 137.6 | 165.1 | 183.5 | 207.4 | 248.8 | 298.6 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.99 | 3.59 | 4.99 | 5.99 | 7.48 | 8.98 | 9.98 | 11.24 | 13.49 | 16.18 | 17.98 | 20.32 | 24.39 | 29.26 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9IDG*-200FWH | 9WHD□-030 | kgfcm | 43.7 | 63.3 | 81.4 | 114.6 | 144.8 | 165.9 | 193.0 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 4.29 | 6.21 | 7.98 | 11.23 | 14.19 | 16.26 | 18.92 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 306.7 | 330.0 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 30.05 | 32.34 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9IDG*-200FHC | 9HC□□ | kgfcm | 138 | 183 | 229 | 275 | 367 | 459 | 550 | 734 | 917 | 1101 | 1468 | 1800 | 1800 | 1800 |
| | | N.m | 13.5 | 17.9 | 22.4 | 27 | 36 | 45 | 53.9 | 71.9 | 89.9 | 108 | 144 | 176 | 176 | 176 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9IDG*-200FH | 9HBK□BH | kgfcm | 36.4 | 43.7 | 60.7 | 72.8 | 91.0 | 109.2 | 121.4 | 136.7 | 164.1 | 196.9 | 218.8 | 247.2 | 296.7 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 3.57 | 4.28 | 5.95 | 7.14 | 8.92 | 10.71 | 11.89 | 13.40 | 16.08 | 19.30 | 21.44 | 24.23 | 29.08 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 | 15 |
| 9IDG*-200FWH | 9WHD□-030 | kgfcm | 52.1 | 75.5 | 97.1 | 136.7 | 172.6 | 183.7 | 204.1 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 5.11 | 7.40 | 9.52 | 13.39 | 16.92 | 18.00 | 20.00 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 350.0 | 330.0 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 34.30 | 32.34 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9IDG*-200FHC | 9HC□□ | kgfcm | 164 | 219 | 273 | 328 | 438 | 547 | 656 | 875 | 1094 | 1313 | 1750 | 1800 | 1800 | 1800 |
| | | N.m | 16.1 | 21.5 | 26.8 | 32.1 | 42.9 | 53.6 | 64.3 | 85.8 | 107 | 129 | 172 | 176 | 176 | 176 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

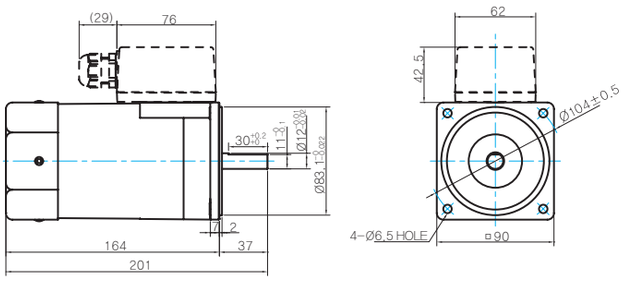
# B AC Motors

## Induction Motor 200W(□90mm)

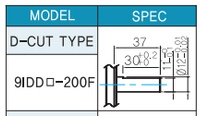
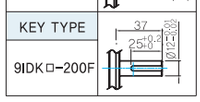
## Dimensions

### MOTOR ONLY

● MOTOR MODEL:
9IDD□-200F(-T) (GENERAL FAN)

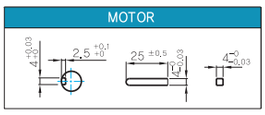



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-200F | |
| KEY TYPE |  |
| 9IDK□-200F | |

● KEY SPEC

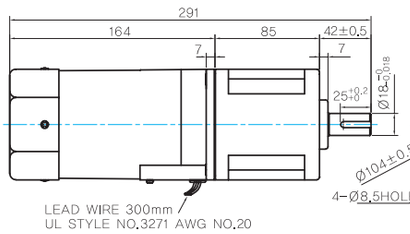
MOTOR



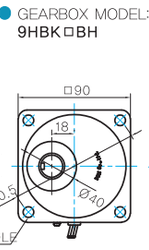
### GEARED MOTOR

### H TYPE GEARBOX

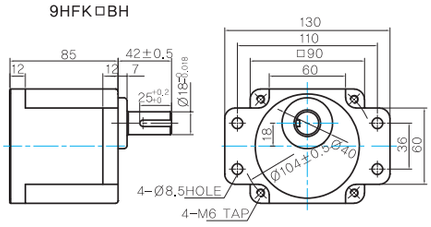
● MOTOR MODEL:
9IDG□-200FH (GENERAL FAN)



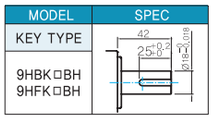

● GEARBOX MODEL:
9HBK□BH



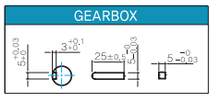

● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

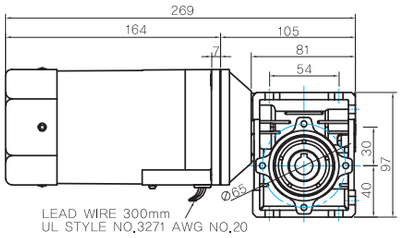
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

GEARBOX

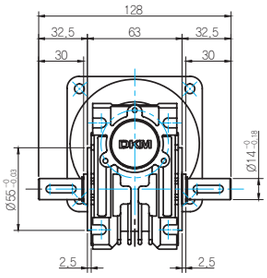


### WH TYPE GEARBOX

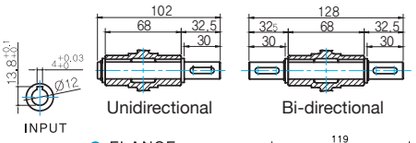
● MOTOR MODEL:
9IDG□-200FWH (GENERAL FAN)



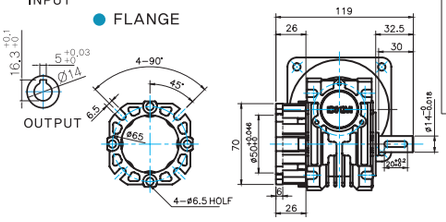

● GEARBOX MODEL:
9WHD□-030




● SHAFT

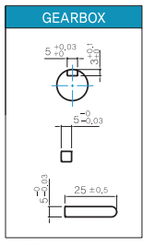



● FLANGE



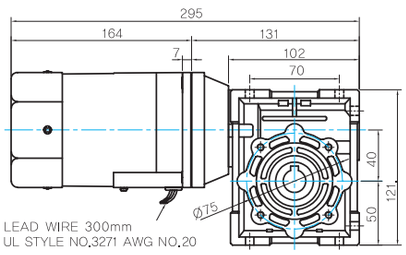

● KEY SPEC

GEARBOX

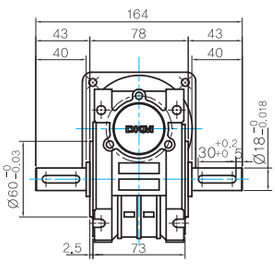


* The output flange and shaft are sold separately

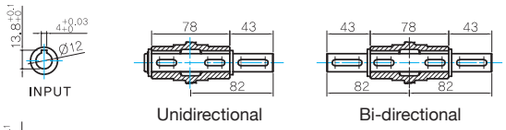
● MOTOR MODEL:
9IDG□-200FWH (GENERAL FAN)



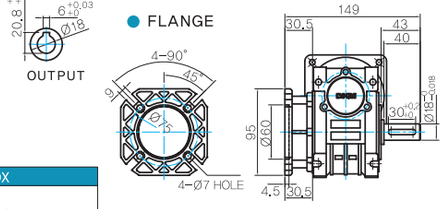

● GEARBOX MODEL:
9WHD□-040




● SHAFT

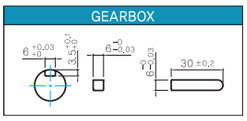



● FLANGE



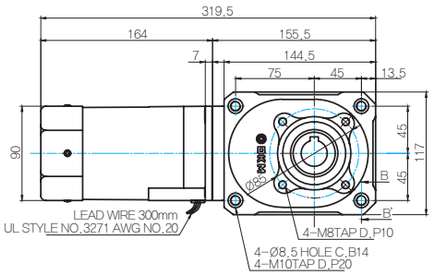

● KEY SPEC

GEARBOX

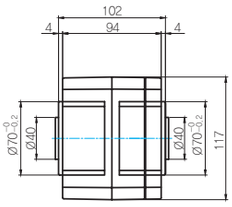


## HC TYPE GEARBOX

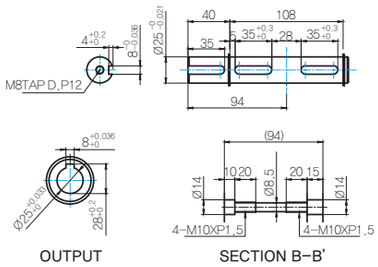
● MOTOR MODEL :
9IDG□-200FHC (GENERAL FAN)



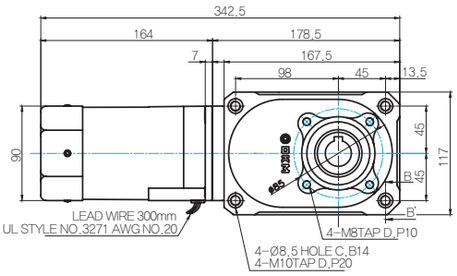

● GEARBOX MODEL:
9HC(15 ~ 60)□



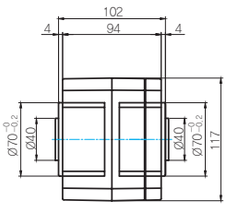

● SHAFT




● MOTOR MODEL :
9IDG□-200FHC (GENERAL FAN)

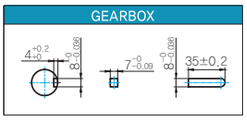



● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC

GEARBOX




## WEIGHT

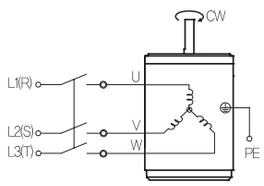
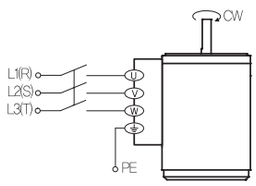
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WHD□-030 | 1.2 |
| | 9WHD□-040 | 2.1 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

## Motor Images

| 9IDD□-200F | 9IDD□-200F-T | 9IDG□-200FH+9HBK□BH | 9IDG□-200FH+9HFK□BH | 9IDG□-200FWH+9WHD□-030 | 9IDG□-200FHC+9HC□□ |
|---|---|---|---|---|---|
| | | | | | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  * CCW Direction: Change any two connections between R, S and T. |  * CCW Direction: Change any two connections between R, S and T. |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.

## Induction Motor 250W(□104mm)

# 250W

Induction
Motor
250W(□104mm)

## Motor Specification

| Model<br>10IDGE-250F□-T: Gear Type Shaft<br>10IDDE-250F-T: D-Cut Type Shaft<br>10IDKE-250F-T: Key Type Shaft<br>Terminal Box Type | Output<br>W | Voltage<br>V | Frequency<br>Hz | Poles | Duty | Starting Torque<br>kgfcm | Starting Torque<br>N.m | Rated Load<br>Speed<br>r/min | Rated Load<br>Current<br>A | Rated Load<br>Torque<br>kgfcm | Rated Load<br>Torque<br>N.m | Capacitor<br>μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10IDGE-250F□-T | 250 | 1Ø 220 | 50 | 4 | Cont. | 11.00 | 1.100 | 1250 | 2.29 | 19.48 | 1.948 | 13.0/450 |
| | | 1Ø 240 | | | | 13.50 | 1.350 | 1300 | 2.17 | 18.74 | 1.874 | |

1) Enter the model type of attaching gearbox in the box ( □ ) within the motor model name.
2) The phase & voltage code E contains a built-in thermal protector.
3) Gear Type Shaft is for attaching gearbox and D-Cut & Key Type Shafts are for using motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 300 | 167 | 150 | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 16.7 | 15 | 12.5 | 10 | 8.3 |
| 10IDGE-250FU-T | 10UBK□BH | kgfcm | 50.0 | 80.0 | 145.0 | 150.0 | 220.0 | 270.0 | 335.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 4.90 | 7.84 | 14.21 | 14.70 | 21.56 | 26.46 | 32.83 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 |
| 10IDKE-250F-T | 10WHD□-040 | kgfcm | 70.0 | 100.0 | 130.0 | 185.0 | 240.0 | 290.0 | 325.0 | 305.0 |
| | | N.m | 6.86 | 9.80 | 12.74 | 18.13 | 23.52 | 28.42 | 31.85 | 29.89 |

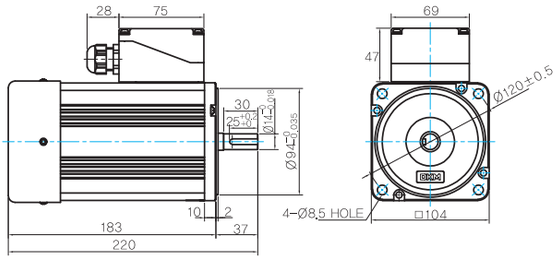
| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 10IDGE-250FHC-T | 10HC□□ | kgfcm | 213 | 284 | 356 | 427 | 569 | 711 | 853 | 1138 | 1422 | 1706 | 2275 | 2844 | 3000 | 3000 |
| | | N.m | 20.9 | 27.8 | 34.9 | 41.8 | 55.8 | 69.7 | 83.6 | 112 | 139 | 167 | 223 | 279 | 294 | 294 |

1) Enter the gear ratio in the box (□) within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

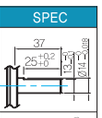
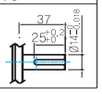
# Dimensions

## MOTOR ONLY

● MOTOR MODEL:
10IDKE-250F-T

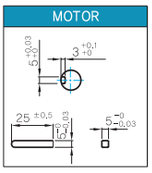



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| KEY TYPE |  |

● KEY SPEC

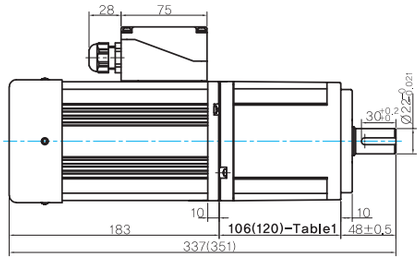
MOTOR



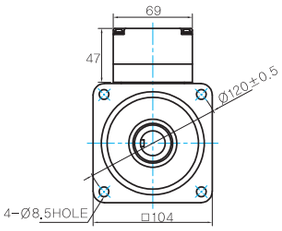
## GEARED MOTOR

### U TYPE GEARBOX

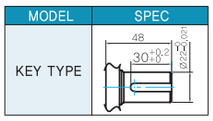
● MOTOR MODEL:
10IDGE-250FU-T




● GEARBOX MODEL:
10UBK□BH

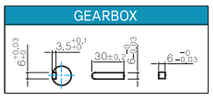



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

GEARBOX

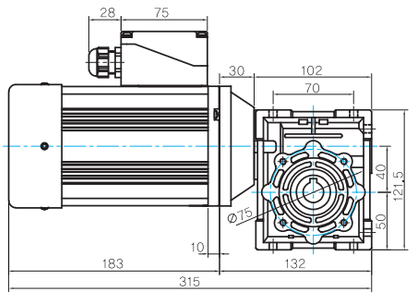


● 106(120)-Table1

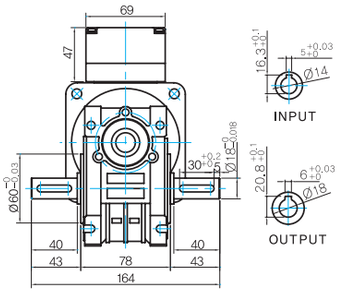
| SIZE(mm) | GEAR RATIO |
|---|---|
| 106 | 10UBK3BH – 10UBK60BH |
| 120 | 10UBK90BH – 10UBK180BH |

### WH TYPE GEARBOX

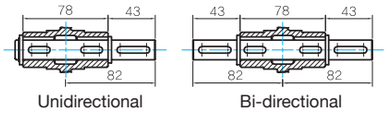
● MOTOR MODEL:
10IDKE-250F-T




● GEARBOX MODEL:
10WHD□-040

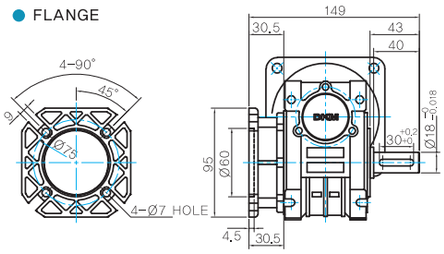



● SHAFT



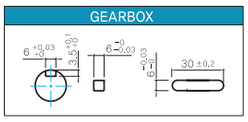

Unidirectional Bi-directional

● FLANGE




● KEY SPEC

GEARBOX

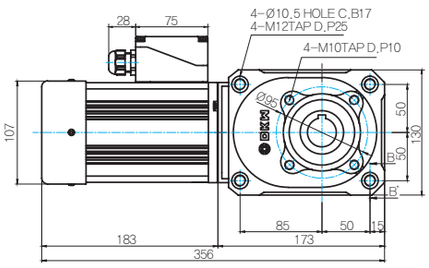


# B AC Motors

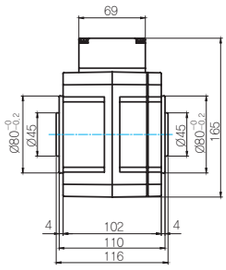
## Induction Motor 250W(□104mm)

### HC TYPE GEARBOX

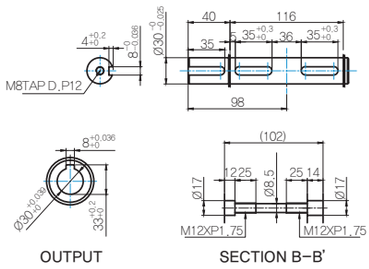
● GEARBOX MODEL : 10IDGE-250FHC-T (GENERAL FAN)



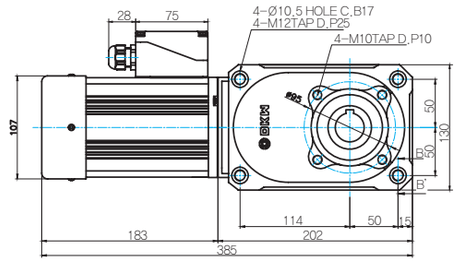

● GEARBOX MODEL : 10HC(15 ~ 60)□



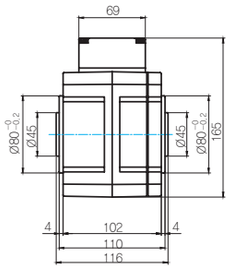

● SHAFT



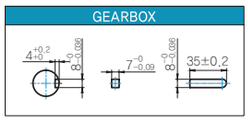

● GEARBOX MODEL : 10IDGE-250FHC-T (GENERAL FAN)




● GEARBOX MODEL : 10HC(80 ~ 240)□




● KEY SPEC

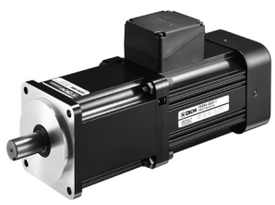



### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 6.1 |
| GEAR BOX | 10UBK3BH – 10UBK9BH | 2.0 |
| | 10UBK10BH – 10UBK15BH | 2.15 |
| | 10UBK20BH – 10UBK60BH | 2.3 |
| | 10UBK90BH – 10UBK180BH | 2.5 |
| | 10WHD□-040 | 2.2 |
| | 10HC15□ | 5.5 |
| | 10HC20□~10HC60□ | 5.6 |
| | 10HC80□~10HC240□ | 6.4 |

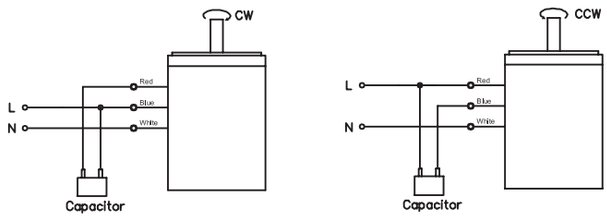
* The output flange and shaft are sold separately

## Motor Images

| 10IDKE-250F-T | 10IDGE-250FU-T+10UBK□BH | 10IDKE-250F-T+10WHD□-040 | 10IDGE-250FHC-T+10HC□□ |
|---|---|---|---|
| |  | | |

## Connection Diagrams

**Terminal Box Type**




1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.

# 300W Induction Motor 300W(□104mm)

## Motor Specification

| Model<br>10IDG*-300F□-T: Gear Type Shaft<br>10IDD*-300F-T: D-Cut Type Shaft<br>10IDK*-300F-T: Key Type Shaft<br>Terminal Box Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10IDGD-300F□-T | 300 | 1Ø 220 | 60 | 4 | Cont. | 13.60 | 1.360 | 1600 | 2.52 | 18.27 | 1.827 | 15.0 / 450 |
| 10IDG7-300F□-T | 300 | 3Ø 230 | 50 | 4 | Cont. | 47.00 | 4.793 | 1300 | 1.70 | 22.48 | 2.248 | – |
| | | 3Ø 400 | | | | 47.00 | 4.793 | 1300 | 1.01 | 22.48 | 2.248 | |
| 10IDG8-300F□-T | 300 | 3Ø 440 | 50 | 4 | Cont. | 47.00 | 4.793 | 1300 | 0.88 | 22.48 | 2.248 | – |
| | | | 60 | | | 35.00 | 3.500 | 1550 | 0.88 | 18.86 | 1.886 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code D contains a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 360 | 200 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 20 | 18 | 12.5 | 12 | 10 |
| 10IDG*-300FU-T | 10UBK□ BH | kgfcm | 45.0 | 75.0 | 135.0 | 140.0 | 205.0 | 250.0 | 300.0 | 300.0 | 350.0 | 350.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 4.41 | 7.35 | 13.23 | 13.72 | 20.09 | 24.50 | 29.40 | 29.40 | 34.30 | 34.30 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 |
| 10IDK*-300F-T | 10WHD□-040 | kgfcm | 65.0 | 95.0 | 125.0 | 175.0 | 225.0 | 270.0 | 300.0 | 285.0 |
| | | N.m | 6.37 | 9.31 | 12.25 | 17.15 | 22.05 | 26.46 | 29.40 | 27.93 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 10IDG*-300FHC-T | 10HC□□ | kgfcm | 200 | 267 | 333 | 400 | 533 | 667 | 800 | 1067 | 1333 | 1600 | 2133 | 2666 | 3000 | 3000 |
| | | N.m | 19.6 | 26.2 | 32.6 | 39.2 | 52.2 | 65.4 | 78.4 | 105 | 131 | 157 | 209 | 261 | 294 | 294 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 300 | 167 | 150 | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 16.7 | 15 | 12.5 | 10 | 8.3 |
| 10IDGD-300FU-T<br>10IDG8-300FU-T | 10UBK□ BH | kgfcm | 55.0 | 95.0 | 170.0 | 170.0 | 250.0 | 300.0 | 300.0 | 300.0 | 350.0 | 350.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 5.39 | 9.31 | 16.66 | 16.66 | 24.50 | 29.40 | 29.40 | 29.40 | 34.30 | 34.30 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 |
| 10IDK*-300F-T | 10WHD□-040 | kgfcm | 80.0 | 115.0 | 150.0 | 215.0 | 275.0 | 335.0 | 375.0 | 350.0 |
| | | N.m | 7.84 | 11.27 | 14.70 | 21.07 | 26.95 | 32.83 | 36.75 | 34.30 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 10IDG*-300FHC-T | 10HC□□ | kgfcm | 246 | 328 | 410 | 492 | 656 | 820 | 984 | 1313 | 1641 | 1969 | 2625 | 3000 | 3000 | 3000 |
| | | N.m | 24.1 | 32.1 | 40.2 | 48.2 | 64.3 | 80.4 | 96.4 | 129 | 161 | 193 | 257 | 294 | 294 | 294 |

1) Enter the phase & voltage code in the place * within the motor model name. 2)Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

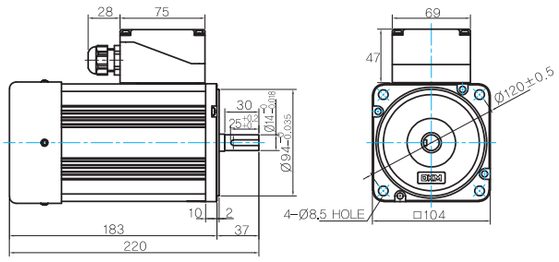
# B AC Motors

## Induction Motor 300W(□104mm)

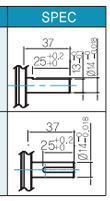
## Dimensions

### MOTOR ONLY

● MOTOR MODEL:
10IDK□-300F-T

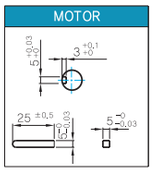



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| KEY TYPE |  |

● KEY SPEC

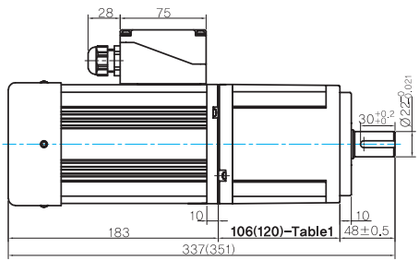
MOTOR



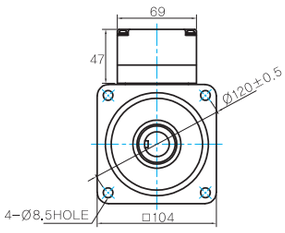
### GEARED MOTOR

### U TYPE GEARBOX

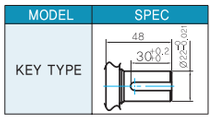
● MOTOR MODEL:
10IDG□-300FU-T




● GEARBOX MODEL:
10UBK□BH

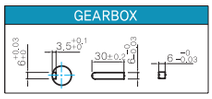



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

GEARBOX

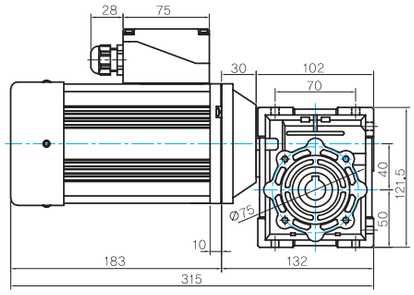


● 106(120)-Table1

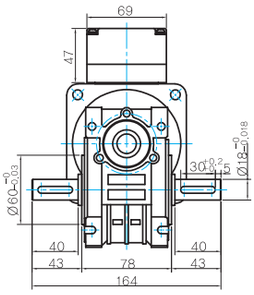
| SIZE(mm) | GEAR RATIO |
|---|---|
| 106 | 10UBK3BH – 10UBK60BH |
| 120 | 10UBK90BH – 10UBK180BH |

### WH TYPE GEARBOX

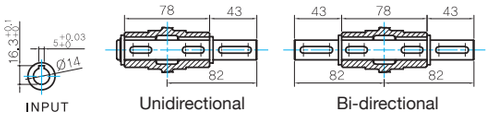
● MOTOR MODEL:
10IDK□-300F-T



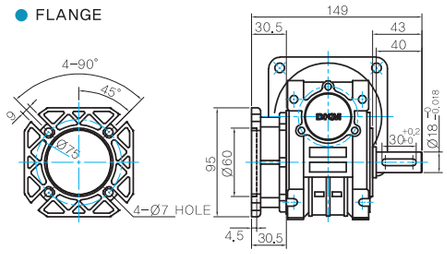

● GEARBOX MODEL:
10WHD□-040




● SHAFT

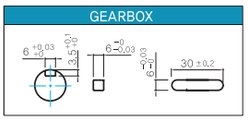



● FLANGE



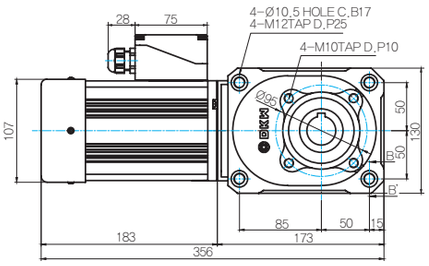

● KEY SPEC

GEARBOX

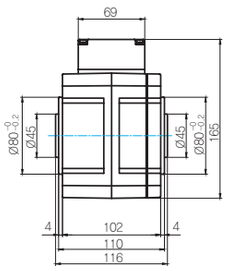


## HC TYPE GEARBOX

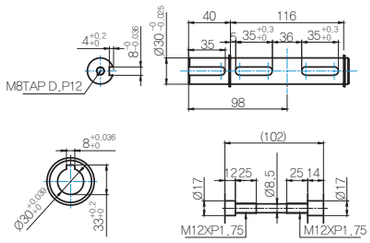
● GEARBOX MODEL : 10IDG□-300FHC-T (GENERAL FAN)



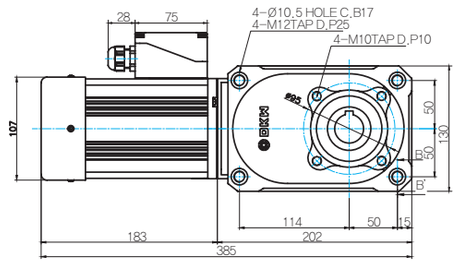

● GEARBOX MODEL : 10HC(15 ~ 60)□



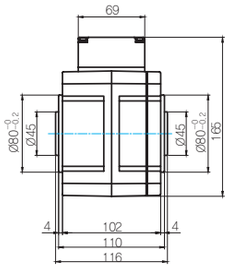

● SHAFT



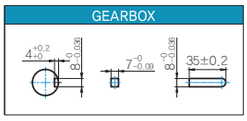

● GEARBOX MODEL : 10IDG□-300FHC-T (GENERAL FAN)




● GEARBOX MODEL : 10HC(80 ~ 240)□




● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 6.1 |
| GEAR BOX | 10UBK3BH – 10UBK9BH | 2.0 |
| | 10UBK10BH – 10UBK15BH | 2.15 |
| | 10UBK20BH – 10UBK60BH | 2.3 |
| | 10UBK90BH – 10UBK180BH | 2.5 |
| | 10WHD□-040 | 2.2 |
| | 10HC15□ | 5.5 |
| | 10HC20□~10HC60□ | 5.6 |
| | 10HC80□~10HC240□ | 6.4 |

* The output flange and shaft are sold separately

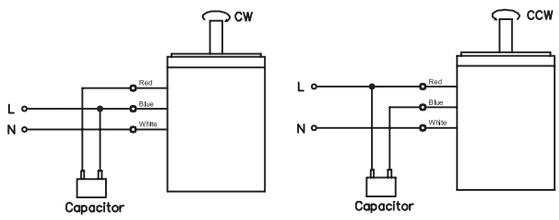
## Motor Images

| 10IDK□-300F-T | 10IDG□-300FU-T+10UBK□BH | 10IDK□-300F-T+10WHD□-040 | 10IDG□-300FHC-T+10HC□□ |
|---|---|---|---|
| | | | |

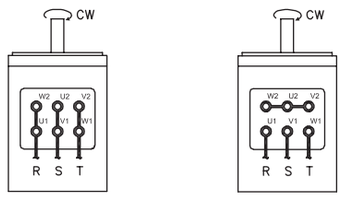
## Connection Diagrams

**Terminal Box Type**

Single Phase




Three Phase




220V / 230V / 440V

380V / 400V

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.

## Induction Motor 400W(□104mm)

# 400W

Induction
Motor
400W(□104mm)

## Motor Specification

| Model<br>10IDG6-400F□-T: Gear Type Shaft<br>10IDD6-400F-T: D-Cut Type Shaft<br>10IDK6-400F-T: Key Type Shaft<br>Terminal Box Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10IDG6-400F□-T | 400 | 3Ø 220 | 60 | 4 | Cont. | 47.00 | 4.793 | 1600 | 2.10 | 24.35 | 2.435 | – |
| | | 3Ø 380 | | | | 47.00 | 4.793 | 1600 | 1.21 | 24.35 | 2.435 | |

1) Enter the model type of attaching gearbox in the box (□) within the motor model name.
2) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Output | Gearbox Model | GearRatio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 360 | 200 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 20 | 18 | 12.5 | 12 | 10 |
| 10IDG6-400FU-T | 10UBK□BH | kgfcm | 60.0 | 100.0 | 180.0 | 185.0 | 275.0 | 300.0 | 300.0 | 300.0 | 350.0 | 350.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 5.88 | 9.80 | 17.64 | 18.13 | 26.95 | 29.40 | 29.40 | 29.40 | 34.30 | 34.30 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | GearRatio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 |
| 10IDK6-400F-T | 10WHD□-040 | kgfcm | 85.0 | 125.0 | 160.0 | 230.0 | 295.0 | 355.0 | 395.0 | 375.0 |
| | | N.m | 8.33 | 12.25 | 15.68 | 22.54 | 28.91 | 34.79 | 38.71 | 36.75 |

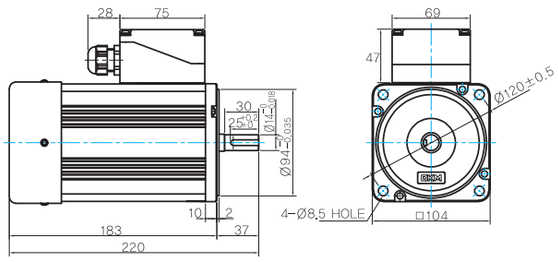
| Motor Model | Gearbox Model | GearRatio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 10IDG6-400FHC-T | 10HC□□ | kgfcm | 267 | 356 | 444 | 533 | 711 | 889 | 1067 | 1422 | 1778 | 2133 | 2844 | 3000 | 3000 | 3000 |
| | | N.m | 26.2 | 34.9 | 43.5 | 52.2 | 69.7 | 87.1 | 105 | 139 | 174 | 209 | 279 | 294 | 294 | 294 |

1) Enter the gear ratio in the box (□) within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

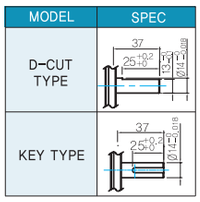
# Dimensions

## MOTOR ONLY

● MOTOR MODEL:
10IDK6-400F-T

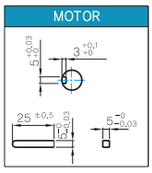



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| KEY TYPE | |

● KEY SPEC

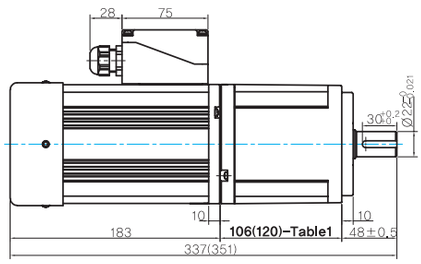
MOTOR



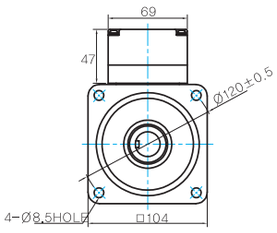
## GEARED MOTOR

### U TYPE GEARBOX

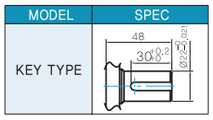
● MOTOR MODEL:
10IDG6-400FU-T




● GEARBOX MODEL:
10UBK□BH

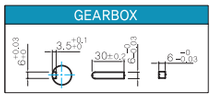



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

GEARBOX

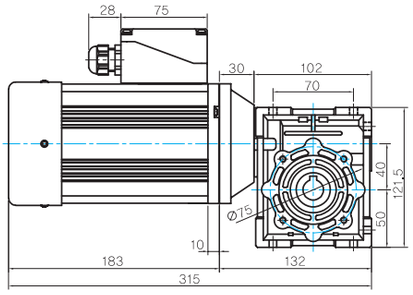


● 106(120)-Table1

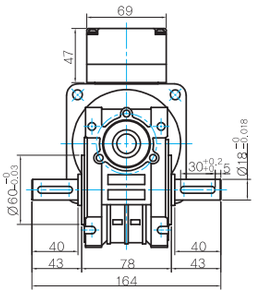
| SIZE(mm) | GEAR RATIO |
|---|---|
| 106 | 10UBK3BH – 10UBK60BH |
| 120 | 10UBK90BH – 10UBK180BH |

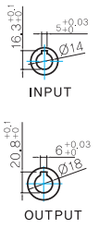
### WH TYPE GEARBOX

● MOTOR MODEL:
10IDK6-400F-T

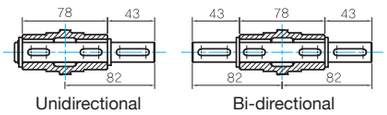



● GEARBOX MODEL:
10WHD□-040

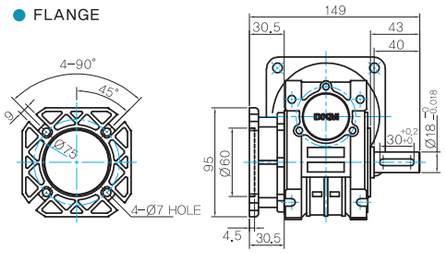



● SHAFT

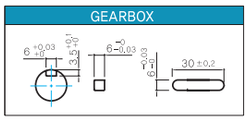



● FLANGE




● KEY SPEC

GEARBOX

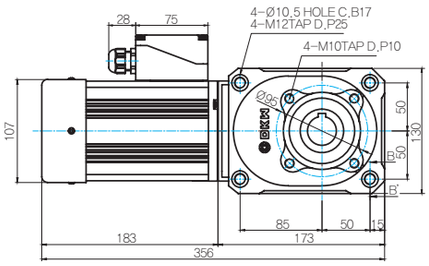


# B AC Motors

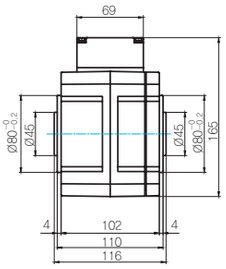
## Induction Motor 400W(□104mm)

### HC TYPE GEARBOX

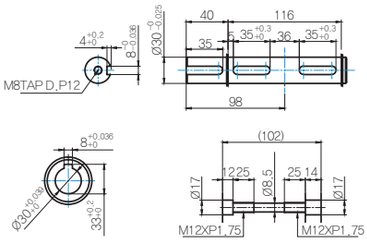
● GEARBOX MODEL :
10IDG6-400FHC-T (GENERAL FAN)



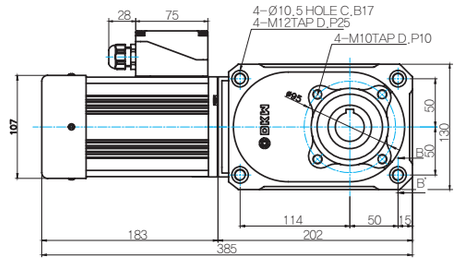

● GEARBOX MODEL :
10HC(15 ~ 60)□



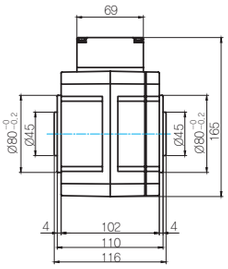

● SHAFT




● GEARBOX MODEL :
10IDG6-400FHC-T (GENERAL FAN)

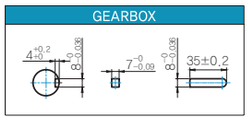



● GEARBOX MODEL :
10HC(80 ~ 240)□




● KEY SPEC

GEARBOX

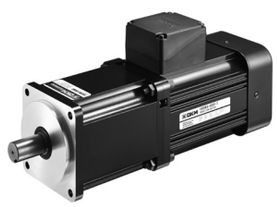



### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 6.1 |
| GEAR BOX | 10UBK3BH – 10UBK9BH | 2.0 |
| | 10UBK10BH – 10UBK15BH | 2.15 |
| | 10UBK20BH – 10UBK60BH | 2.3 |
| | 10UBK90BH – 10UBK180BH | 2.5 |
| | 10HC15□ | 5.5 |
| | 10HC20□~10HC60□ | 5.6 |
| | 10HC80□~10HC240□ | 6.4 |

* The output flange and shaft are sold separately

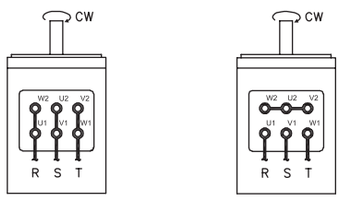
## Motor Images

| 10IDK6-400 F-T | 10IDG6-400 FU-T+10UBK□BH | 10IDK6-400 F-T+10WHD□-040 | 10IDG6-400FHC-T+10HC□□ |
|---|---|---|---|
| |  | | |

## Connection Diagrams

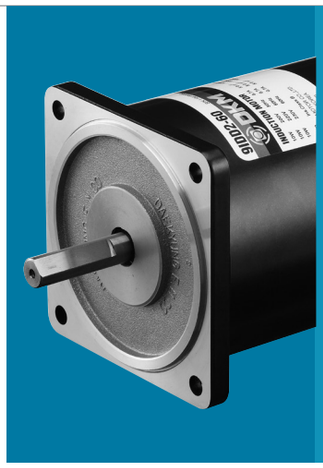
**Terminal Box Type**

Three Phase

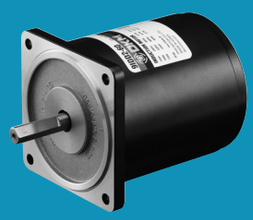



220V / 230V / 440V　　380V / 400V

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.



# 2 Pole Motor





## Index


| | |
|---|---|
| 2 Pole Motor 15W (□80mm) | B-59 |
| 2 Pole Motor 25W (□80mm) | B-61 |
| 2 Pole Motor 40W (□90mm) | B-63 |
| 2 Pole Motor 60W (□90mm) | B-65 |
| 2 Pole Motor 90W (□90mm) | B-67 |
| 2 Pole Motor 120W (□90mm) | B-69 |
| 2 Pole Motor 150W (□90mm) | B-71 |
| 2 Pole Motor 200W (□90mm) | B-73 |

# 15W 2 Pole Motor 15W(□80mm)

## Motor Specification

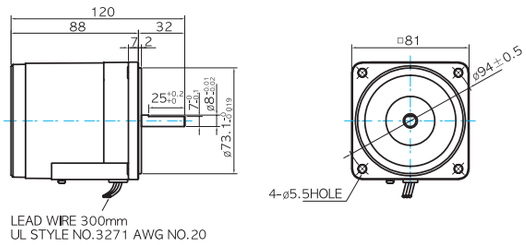
| Model<br>8IDD*-15-A(T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 8IDD1(A)-15-A | 8IDD1(A)-15-AT | 15 | 1ø 110 | 60 | 2 | Cont. | 0.75 | 0.075 | 3200 | 0.51 | 0.46 | 0.046 | 6.0 / 250 |
| 8IDD2(D)-15-A | 8IDD2(D)-15-AT | 15 | 1ø 220 | 60 | 2 | Cont. | 0.58 | 0.058 | 3200 | 0.23 | 0.46 | 0.046 | 1.2 / 450 |
| 8IDDE-15-A | 8IDDE-15-AT | 15 | 1ø 220 | 50 | 2 | Cont. | 0.58 | 0.058 | 2700 | 0.19 | 0.54 | 0.054 | 1.2 / 450 |
| | | | 1ø 240 | | | | 0.73 | 0.073 | | 0.22 | 0.54 | 0.054 | |
| 8IDD3(G)-15-A | 8IDD3(G)-15-AT | 15 | 3ø 220 | 50 | 2 | Cont. | 2.08 | 0.208 | 2800 | 0.13 | 0.52 | 0.052 | – |
| | | | | 60 | | | 1.66 | 0.166 | 3300 | 0.13 | 0.44 | 0.044 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 2.24 | 0.224 | 2800 | 0.14 | 0.52 | 0.052 | – |
| | | | | 60 | | | 1.81 | 0.181 | 3300 | 0.14 | 0.44 | 0.044 | |

1) Enter the phase & voltage code in the place * within the motor model name..
2) The phase & voltage code A, D, E, G contain a built-in thermal protector.

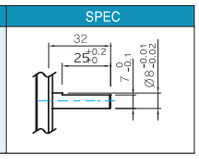
## Dimensions

### LEAD WIRE TYPE

● MOTOR MODEL: 8IDD□-15-A (NO FAN)

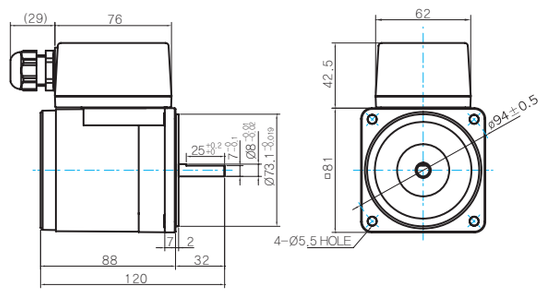



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

### TERMINAL BOX TYPE

● MOTOR MODEL: 8IDD□-15-AT (NO FAN)




### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 1.56 |

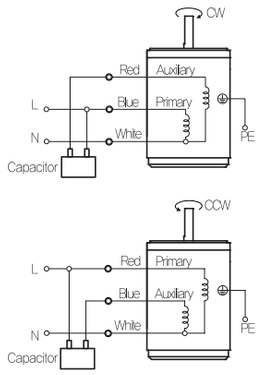
## Motor Images

| 8IDD□-15-A | 8IDD□-15-AT |
|---|---|
| | |

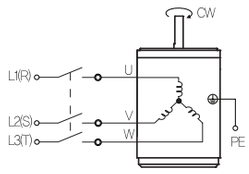
## Connection Diagrams

**Lead Wire Type**

**[Single Phase]**



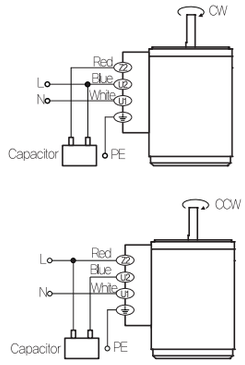

**[Three Phase]**



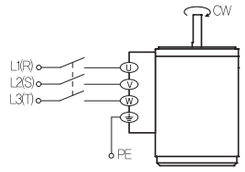

* **CCW Direction:**
Change any two connections among R, S and T.

**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* **CCW Direction:**
Change any two connections among R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# B AC Motors

## 2 Pole Motor 25W(□80mm)

# 25W 2 Pole Motor 25W(□80mm)

## Motor Specification

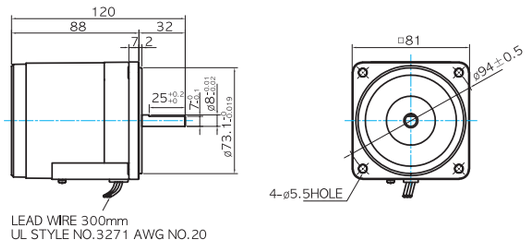
| Model 8IDD*-25-A(T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 8IDD1(A)-25-A | 8IDD1(A)-25-AT | 25 | 1ø 110 | 60 | 2 | Cont. | 0.75 | 0.075 | 3200 | 0.52 | 0.76 | 0.076 | 6.0 / 250 |
| 8IDD2(D)-25-A | 8IDD2(D)-25-AT | 25 | 1ø 220 | 60 | 2 | Cont. | 0.73 | 0.073 | 3200 | 0.26 | 0.76 | 0.076 | 1.5 / 450 |
| 8IDDE-25-A | 8IDDE-25-AT | 25 | 1ø 220 | 50 | 2 | Cont. | 0.73 | 0.073 | 2600 | 0.24 | 0.94 | 0.094 | 1.5 / 450 |
| | | | 1ø 240 | | | | 0.91 | 0.091 | | 0.26 | 0.94 | 0.094 | |
| 8IDD3(G)-25-A | 8IDD3(G)-25-AT | 25 | 3ø 220 | 50 | 2 | Cont. | 2.12 | 0.212 | 2700 | 0.15 | 0.90 | 0.090 | – |
| | | | | 60 | | | 1.70 | 0.170 | 3200 | 0.15 | 0.76 | 0.076 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 2.29 | 0.229 | 2700 | 0.16 | 0.90 | 0.090 | – |
| | | | | 60 | | | 1.85 | 0.185 | 3200 | 0.16 | 0.76 | 0.076 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E, G contain a built-in thermal protector.

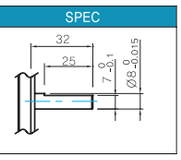
## Dimensions

### LEAD WIRE TYPE

● MOTOR MODEL: 8IDD□-25-A (NO FAN)

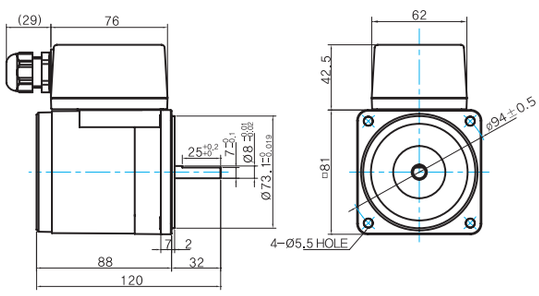



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

### TERMINAL BOX TYPE

● MOTOR MODEL: 8IDD□-25-AT (NO FAN)




### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 1.56 |

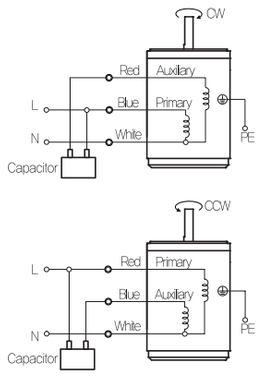
## Motor Images

| 8IDD□-25-A | 8IDD□-25-AT |
|---|---|
| | |

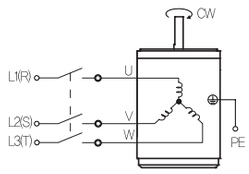
## Connection Diagrams

**Lead Wire Type**

**[Single Phase]**



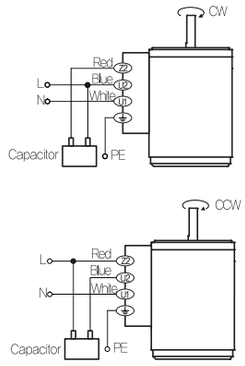

**[Three Phase]**



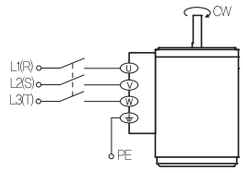

* **CCW Direction:**
Change any two connections among R, S and T.

**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* **CCW Direction:**
Change any two connections among R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# 40W 2 Pole Motor 40W(□90mm)

## Motor Specification

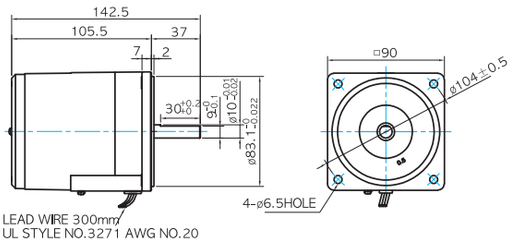
| Model<br>9IDD*-40-A(T): D-Cut Type Shaft<br>9IDK*-40-A(T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDD1(A)-40-A | 9IDD1(A)-40-AT | 40 | 1ø 110 | 60 | 2 | Cont. | 1.40 | 0.140 | 3200 | 1.07 | 1.22 | 0.122 | 12.0 / 250 |
| 9IDD2(D)-40-A | 9IDD2(D)-40-AT | 40 | 1ø 220 | 60 | 2 | Cont. | 1.82 | 0.182 | 3200 | 0.63 | 1.22 | 0.122 | 4.0 / 450 |
| 9IDDE-40-A | 9IDDE-40-AT | 40 | 1ø 220 | 50 | 2 | Cont. | 1.75 | 0.175 | 2700 | 0.49 | 1.44 | 0.144 | 4.0 / 450 |
| | | | 1ø 240 | | | | 2.05 | 0.205 | | 0.52 | 1.44 | 0.144 | |
| 9IDD3(G)-40-A | 9IDD3(G)-40-AT | 40 | 3ø 220 | 50 | 2 | Cont. | 5.16 | 0.516 | 2700 | 0.28 | 1.44 | 0.144 | – |
| | | | | 60 | | | 4.15 | 0.415 | 3200 | 0.28 | 1.22 | 0.122 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 5.63 | 0.563 | 2700 | 0.30 | 1.44 | 0.144 | |
| | | | | 60 | | | 4.48 | 0.448 | 3200 | 0.29 | 1.22 | 0.122 | |
| 9IDD4(K)-40-A | 9IDD4(K)-40-AT | 40 | 3ø 380 | 50 | 2 | Cont. | 6.27 | 0.627 | 2700 | 0.18 | 1.44 | 0.144 | – |
| | | | | 60 | | | 4.96 | 0.496 | 3200 | 0.19 | 1.22 | 0.122 | |
| | | | 3ø 400 | 50 | 2 | Cont. | 6.86 | 0.686 | 2700 | 0.20 | 1.44 | 0.144 | |
| | | | | 60 | | | 5.41 | 0.541 | 3200 | 0.20 | 1.22 | 0.122 | |
| 9IDD5(L)-40-A | 9IDD5(L)-40-AT | 40 | 3ø 415 | 50 | 2 | Cont. | 6.12 | 0.612 | 2700 | 0.17 | 1.44 | 0.144 | – |
| | | | | 60 | | | 4.95 | 0.495 | 3200 | 0.17 | 1.22 | 0.122 | |
| | | | 3ø 440 | 50 | 2 | Cont. | 6.80 | 0.680 | 2700 | 0.18 | 1.44 | 0.144 | |
| | | | | 60 | | | 5.48 | 0.548 | 3200 | 0.18 | 1.22 | 0.122 | |

1) Enter the phase & voltage code in the place * within the motor model name. 2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

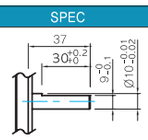
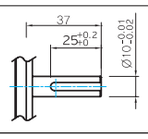
## Dimensions

### LEAD WIRE TYPE

● MOTOR MODEL: 9IDD□-40-A (NO FAN)

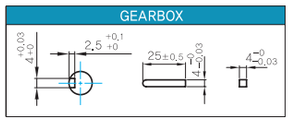



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-40-A | |
| KEY TYPE |  |
| 9IDK□-40-A | |

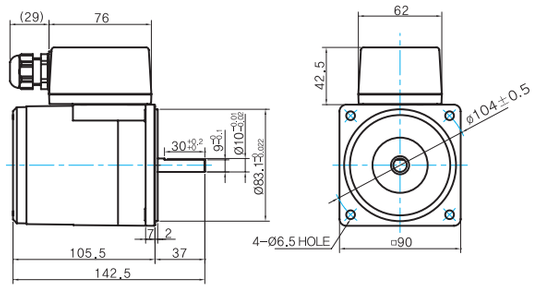
● KEY SPEC

GEARBOX



### TERMINAL BOX TYPE

● MOTOR MODEL: 9IDD□-40-AT (NO FAN)




### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 2.45 |

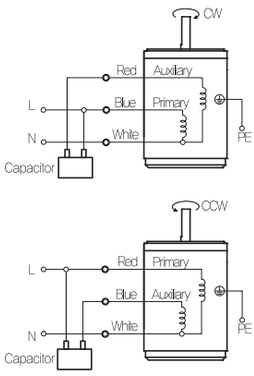
## Motor Images

| 9IDD□-40-A | 9IDD□-40-AT |
|---|---|
| | |

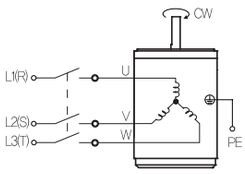
## Connection Diagrams

**Lead Wire Type**

**[Single Phase]**



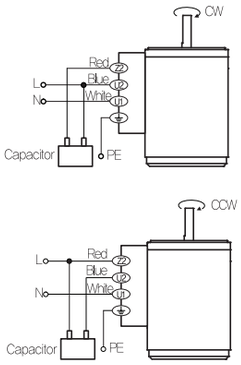

**[Three Phase]**



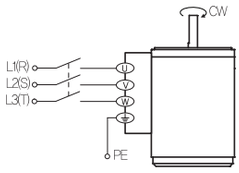

* **CCW Direction:**
Change any two connections among R, S and T.

**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* **CCW Direction:**
Change any two connections among R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# B AC Motors

## 2 Pole Motor 60W(□90mm)

# 60W 2 Pole Motor 60W(□90mm)

## Motor Specification

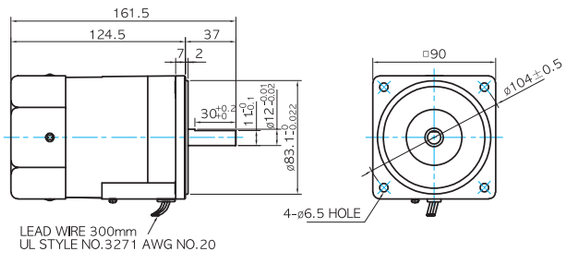
| Model<br>9IDD*-60F-A(T): D-Cut Type Shaft<br>9IDK*-60F-A(T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDD1(A)-60F-A | 9IDD1(A)-60F-AT | 60 | 1ø 110 | 60 | 2 | Cont. | 2.00 | 0.200 | 3200 | 1.40 | 1.83 | 0.183 | 16.0 / 250 |
| 9IDD2(D)-60F-A | 9IDD2(D)-60F-AT | 60 | 1ø 220 | 60 | 2 | Cont. | 2.68 | 0.268 | 3200 | 0.86 | 1.83 | 0.183 | 5.0 / 450 |
| 9IDDE-60F-A | 9IDDE-60F-AT | 60 | 1ø 220 | 50 | 2 | Cont. | 2.49 | 0.249 | 2700 | 0.61 | 2.16 | 0.216 | 5.0 / 450 |
| | | | 1ø 240 | | | | 3.06 | 0.306 | | 0.68 | 2.16 | 0.216 | |
| 9IDD3(G)-60F-A | 9IDD3(G)-60F-AT | 60 | 3ø 220 | 50 | 2 | Cont. | 6.88 | 0.688 | 2700 | 0.35 | 2.16 | 0.216 | – |
| | | | | 60 | | | 5.50 | 0.550 | 3200 | 0.33 | 1.83 | 0.183 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 7.46 | 0.746 | 2700 | 0.36 | 2.16 | 0.216 | |
| | | | | 60 | | | 5.96 | 0.596 | 3200 | 0.35 | 1.83 | 0.183 | |
| 9IDD4(K)-60F-A | 9IDD4(K)-60F-AT | 60 | 3ø 380 | 50 | 2 | Cont. | 7.35 | 0.735 | 2700 | 0.22 | 2.16 | 0.216 | – |
| | | | | 60 | | | 5.76 | 0.576 | 3200 | 0.21 | 1.83 | 0.183 | |
| | | | 3ø 400 | 50 | 2 | Cont. | 8.10 | 0.810 | 2700 | 0.23 | 2.16 | 0.216 | |
| | | | | 60 | | | 6.39 | 0.639 | 3200 | 0.22 | 1.83 | 0.183 | |
| 9IDD5(L)-60F-A | 9IDD5(L)-60F-AT | 60 | 3ø 415 | 50 | 2 | Cont. | 7.80 | 0.780 | 2700 | 0.21 | 2.16 | 0.216 | – |
| | | | | 60 | | | 6.20 | 0.620 | 3200 | 0.20 | 1.83 | 0.183 | |
| | | | 3ø 440 | 50 | 2 | Cont. | 8.66 | 0.866 | 2700 | 0.23 | 2.16 | 0.216 | |
| | | | | 60 | | | 6.86 | 0.686 | 3200 | 0.21 | 1.83 | 0.183 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

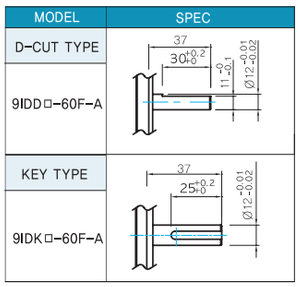
## Dimensions

### LEAD WIRE TYPE

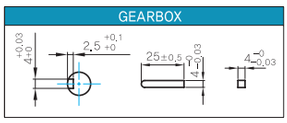
● MOTOR MODEL: 9IDD□-60F-A (GENERAL FAN)




● MOTOR OUTPUT SHAFT

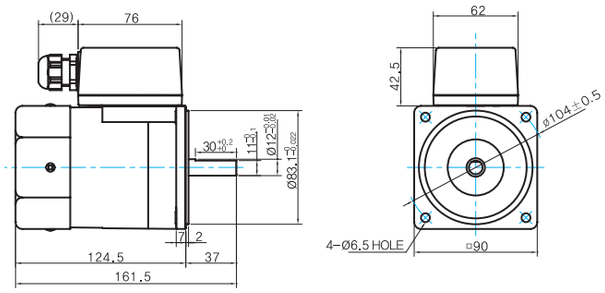



● KEY SPEC




### TERMINAL BOX TYPE

● MOTOR MODEL: 9IDD□-60F-AT (GENERAL FAN)




### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 2.65 |

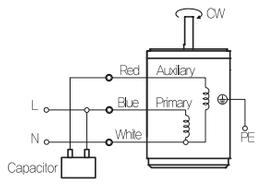
## Motor Images

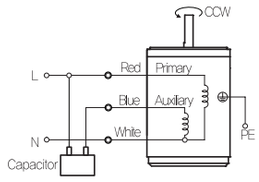
| 9IDD□-60F-A | 9IDD□-60F-AT |
|---|---|
| | |

## Connection Diagrams

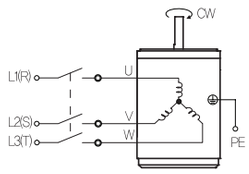
**Lead Wire Type**

**[Single Phase]**



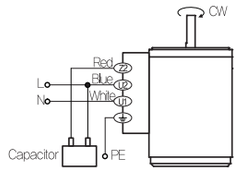

**[Three Phase]**

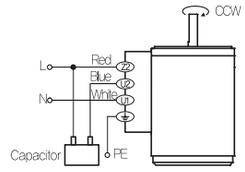



* **CCW Direction:**
Change any two connections among R, S and T.

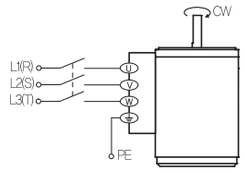
**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* **CCW Direction:**
Change any two connections among R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# B AC Motors

## 2 Pole Motor 90W(□90mm)

# 90W

2 Pole
Motor
90W(□90mm)

## Motor Specification

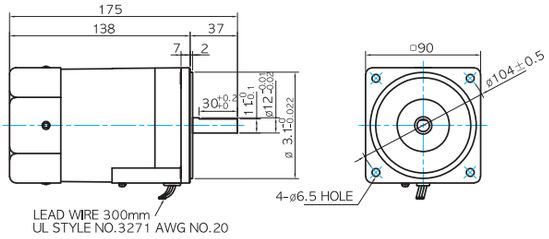
| Model<br>9IDD*-90F-A(T): D-Cut Type Shaft<br>9IDK*-90F-A(T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDD1(A)-90F-A | 9IDD1(A)-90F-AT | 90 | 1ø 110 | 60 | 2 | Cont. | 2.23 | 0.223 | 3200 | 1.98 | 2.74 | 0.274 | 20.0 / 250 |
| 9IDD2(D)-90F-A | 9IDD2(D)-90F-AT | 90 | 1ø 220 | 60 | 2 | Cont. | 2.74 | 0.274 | 3200 | 1.09 | 2.74 | 0.274 | 6.0 / 450 |
| 9IDDE-90F-A | 9IDDE-90F-AT | 90 | 1ø 220 | 50 | 2 | Cont. | 2.92 | 0.292 | 2700 | 0.82 | 3.25 | 0.325 | 6.0 / 450 |
| | | | 1ø 240 | | | | 3.49 | 0.349 | | 0.91 | 3.25 | 0.325 | |
| 9IDD3(G)-90F-A | 9IDD3(G)-90F-AT | 90 | 3ø 220 | 50 | 2 | Cont. | 11.00 | 1.100 | 2750 | 0.55 | 3.19 | 0.319 | – |
| | | | | 60 | | | 8.00 | 0.800 | 3250 | 0.54 | 2.70 | 0.270 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 12.00 | 1.200 | 2750 | 0.60 | 3.19 | 0.319 | |
| | | | | 60 | | | 9.00 | 0.900 | 3250 | 0.56 | 2.70 | 0.270 | |
| 9IDD4(K)-90F-A | 9IDD4(K)-90F-AT | 90 | 3ø 380 | 50 | 2 | Cont. | 10.44 | 1.044 | 2700 | 0.34 | 3.25 | 0.325 | – |
| | | | | 60 | | | 8.06 | 0.806 | 3200 | 0.33 | 2.74 | 0.274 | |
| | | | 3ø 400 | 50 | 2 | Cont. | 11.41 | 1.141 | 2700 | 0.36 | 3.25 | 0.325 | |
| | | | | 60 | | | 8.90 | 0.890 | 3200 | 0.34 | 2.74 | 0.274 | |
| 9IDD5(L)-90F-A | 9IDD5(L)-90F-AT | 90 | 3ø 415 | 50 | 2 | Cont. | 10.16 | 1.016 | 2700 | 0.34 | 3.25 | 0.325 | – |
| | | | | 60 | | | 7.81 | 0.781 | 3200 | 0.32 | 2.74 | 0.274 | |
| | | | 3ø 440 | 50 | 2 | Cont. | 11.24 | 1.124 | 2700 | 0.36 | 3.25 | 0.325 | |
| | | | | 60 | | | 8.66 | 0.866 | 3200 | 0.34 | 2.74 | 0.274 | |

1) Enter the phase & voltage code in the place * within the motor model name. 2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

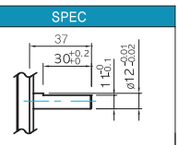
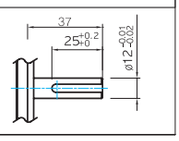
## Dimensions

### LEAD WIRE TYPE

● MOTOR MODEL: 9IDD□-90F-A (GENERAL FAN)

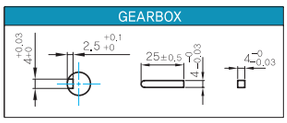



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-90F-A | |
| KEY TYPE |  |
| 9IDK□-90F-A | |

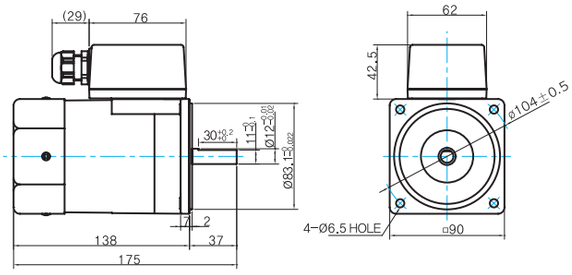
● KEY SPEC

GEARBOX



### TERMINAL BOX TYPE

● MOTOR MODEL: 9IDD□-90F-AT (GENERAL FAN)




### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 3.05 |

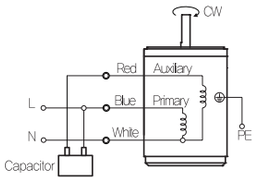
## Motor Images

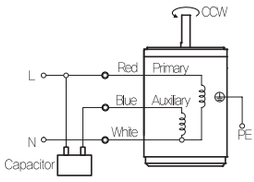
| 9IDD□-90F-A | 9IDD□-90F-AT |
|---|---|
| | |

## Connection Diagrams

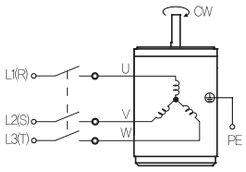
**Lead Wire Type**

**[Single Phase]**



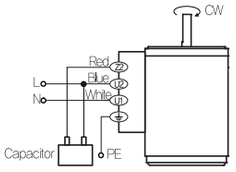

**[Three Phase]**

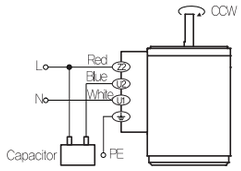



* **CCW Direction:**
Change any two connections among R, S and T.

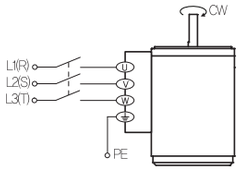
**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* **CCW Direction:**
Change any two connections among R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# B AC Motors

## 2 Pole Motor 120W(□90mm)

# 120W

2 Pole
Motor
120W(□90mm)

## Motor Specification

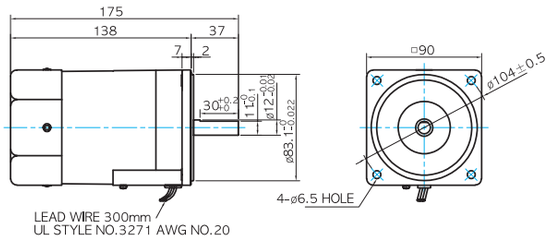
| Model<br>9IDD*-120F-A(T): D-Cut Type Shaft<br>9IDK*-120F-A(T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDD1(A)-120F-A | 9IDD1(A)-120F-AT | 120 | 1ø 110 | 60 | 2 | Cont. | 3.00 | 0.300 | 3200 | 2.30 | 3.65 | 0.365 | 25.0 / 250 |
| 9IDD2(D)-120F-A | 9IDD2(D)-120F-AT | 120 | 1ø 220 | 60 | 2 | Cont. | 3.00 | 0.300 | 3200 | 1.15 | 3.65 | 0.365 | 6.5 / 450 |
| 9IDDE-120F-A | 9IDDE-120F-AT | 120 | 1ø 220 | 50 | 2 | Cont. | 3.20 | 0.320 | 2600 | 0.98 | 4.50 | 0.450 | 6.5 / 450 |
| | | | 1ø 240 | | | | 3.80 | 0.380 | | 1.08 | 4.50 | 0.450 | |
| 9IDD3(G)-120F-A | 9IDD3(G)-120F-AT | 120 | 3ø 220 | 50 | 2 | Cont. | 12.35 | 1.235 | 2700 | 0.65 | 4.33 | 0.433 | – |
| | | | | 60 | | | 9.67 | 0.967 | 3200 | 0.63 | 3.65 | 0.365 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 13.35 | 1.335 | 2700 | 0.69 | 4.33 | 0.433 | |
| | | | | 60 | | | 10.49 | 1.049 | 3200 | 0.67 | 3.65 | 0.365 | |
| 9IDD4(K)-120F-A | 9IDD4(K)-120F-AT | 120 | 3ø 380 | 50 | 2 | Cont. | 12.40 | 1.240 | 2700 | 0.35 | 4.33 | 0.433 | – |
| | | | | 60 | | | 9.58 | 0.958 | 3200 | 0.34 | 3.65 | 0.365 | |
| | | | 3ø 400 | 50 | 2 | Cont. | 13.55 | 1.355 | 2700 | 0.37 | 4.33 | 0.433 | |
| | | | | 60 | | | 10.57 | 1.057 | 3200 | 0.35 | 3.65 | 0.365 | |
| 9IDD5(L)-120F-A | 9IDD5(L)-120F-AT | 120 | 3ø 415 | 50 | 2 | Cont. | 12.07 | 1.207 | 2700 | 0.35 | 4.33 | 0.433 | – |
| | | | | 60 | | | 9.27 | 0.927 | 3200 | 0.33 | 3.60 | 0.360 | |
| | | | 3ø 440 | 50 | 2 | Cont. | 13.35 | 1.335 | 2700 | 0.37 | 4.25 | 0.425 | |
| | | | | 60 | | | 10.29 | 1.029 | 3200 | 0.35 | 3.60 | 0.360 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

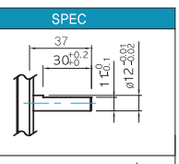
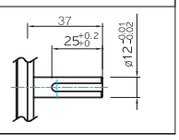
## Dimensions

### LEAD WIRE TYPE

● MOTOR MODEL: 9IDD□-120F-A (GENERAL FAN)

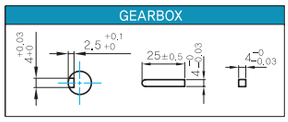



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-120F-A | |
| KEY TYPE |  |
| 9IDK□-120F-A | |

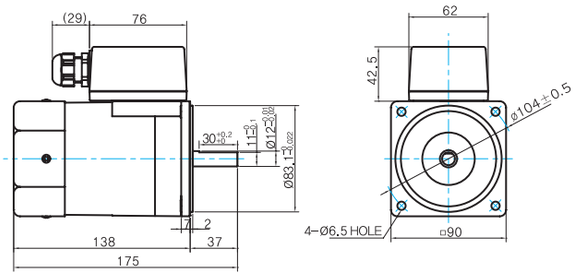
● KEY SPEC

GEARBOX



### TERMINAL BOX TYPE

● MOTOR MODEL: 9IDD□-120F-AT (GENERAL FAN)




### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 3.05 |

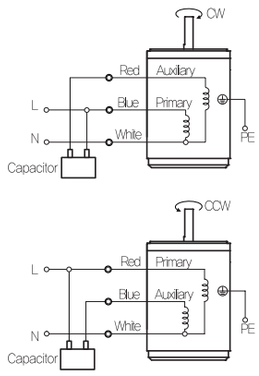
## Motor Images

| 9IDD□-120F-A | 9IDD□-120F-AT |
|---|---|
| | |

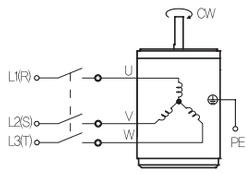
## Connection Diagrams

**Lead Wire Type**

**[Single Phase]**



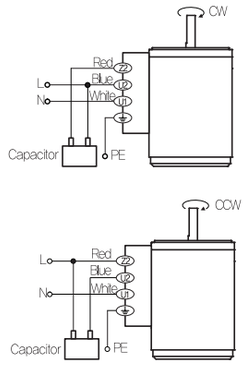

**[Three Phase]**



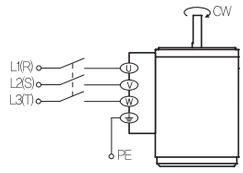

* **CCW Direction:**
Change any two connections among R, S and T.

**Terminal Box Type**

**[Single Phase]**




**[Three Phase]**




* **CCW Direction:**
Change any two connections among R, S and T.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) Change the direction of single phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction after some delay.

# B AC Motors

## 2 Pole Motor 150W(□90mm)

# 150W

2 Pole
Motor
150W(□90mm)

## Motor Specification

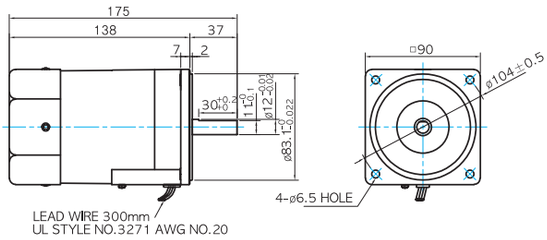
| Model<br>9IDD*-150F-A(T): D-Cut Type Shaft<br>9IDK*-150F-A(T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDD3(G)-150F-A | 9IDD3(G)-150F-AT | 150 | 3ø 220 | 50 | 2 | Cont. | 13.91 | 1.391 | 2700 | 0.83 | 5.41 | 0.541 | – |
| | | | | 60 | | | 11.08 | 1.108 | 3200 | 0.75 | 4.57 | 0.457 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 14.97 | 1.497 | 2700 | 0.91 | 5.41 | 0.541 | |
| | | | | 60 | | | 11.97 | 1.197 | 3200 | 0.80 | 4.57 | 0.457 | |
| 9IDD4(K)-150F-A | 9IDD4(K)-150F-AT | 150 | 3ø 380 | 50 | 2 | Cont. | 14.38 | 1.438 | 2700 | 0.44 | 5.41 | 0.541 | – |
| | | | | 60 | | | 11.48 | 1.148 | 3200 | 0.41 | 4.57 | 0.457 | |
| | | | 3ø 400 | 50 | 2 | Cont. | 15.59 | 1.559 | 2700 | 0.49 | 5.41 | 0.541 | |
| | | | | 60 | | | 12.56 | 1.256 | 3200 | 0.43 | 4.57 | 0.457 | |
| 9IDD5(L)-150F-A | 9IDD5(L)-150F-AT | 150 | 3ø 415 | 50 | 2 | Cont. | 14.02 | 1.402 | 2700 | 0.44 | 5.41 | 0.541 | – |
| | | | | 60 | | | 11.27 | 1.127 | 3200 | 0.40 | 4.57 | 0.457 | |
| | | | 3ø 440 | 50 | 2 | Cont. | 15.52 | 1.552 | 2700 | 0.48 | 5.41 | 0.541 | |
| | | | | 60 | | | 12.51 | 1.251 | 3200 | 0.44 | 4.57 | 0.457 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code G, K, L contain a built-in thermal protector.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

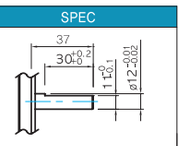
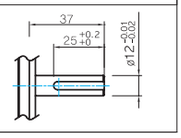
## Dimensions

### LEAD WIRE TYPE

● MOTOR MODEL: 9IDD□-150F-A (GENERAL FAN)

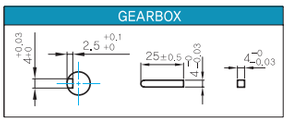



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE<br>9IDD□-150F-A |  |
| KEY TYPE<br>9IDK□-150F-A |  |

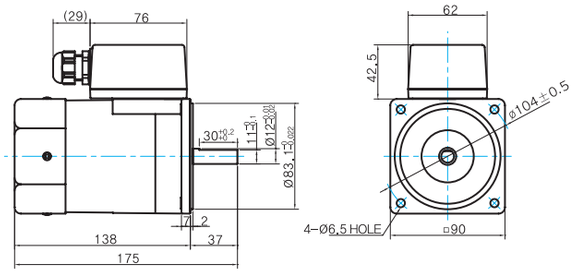
● KEY SPEC

GEARBOX



### TERMINAL BOX TYPE

● MOTOR MODEL: 9IDD□-150F-AT (GENERAL FAN)



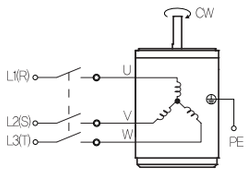
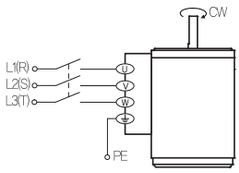

### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 3.05 |

## Motor Images

| 9IDD□-150F-A | 9IDD□-150F-AT |
|---|---|
| | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|   ★ **CCW Direction:** Change any two connections among R, S and T. |   ★ **CCW Direction:** Change any two connections among R, S and T. |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.

# B AC Motors

## 2 Pole Motor 200W(□90mm)

# 200W

2 Pole
Motor
200W(□90mm)

## Motor Specification

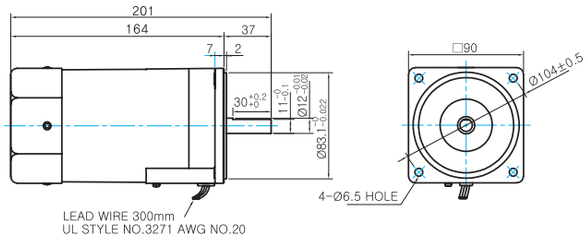
| Model<br>9IDD*-200F-A(T): D-Cut Type Shaft<br>9IDK*-200F-A(T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9IDD3(G)-200F-A | 9IDD3(G)-200F-AT | 200 | 3ø 220 | 50 | 2 | Cont. | 17.96 | 1.796 | 2600 | 1.09 | 7.49 | 0.749 | – |
| | | | | 60 | | | 14.12 | 1.412 | 3200 | 0.89 | 6.09 | 0.609 | |
| | | | 3ø 230 | 50 | 2 | Cont. | 19.37 | 1.937 | 2600 | 1.10 | 7.49 | 0.749 | |
| | | | | 60 | | | 15.30 | 1.530 | 3200 | 0.91 | 6.09 | 0.609 | |
| 9IDD4(K)-200F-A | 9IDD4(K)-200F-AT | 200 | 3ø 380 | 50 | 2 | Cont. | 17.57 | 1.757 | 2600 | 0.55 | 7.49 | 0.749 | – |
| | | | | 60 | | | 13.91 | 1.391 | 3200 | 0.48 | 6.09 | 0.609 | |
| | | | 3ø 400 | 50 | 2 | Cont. | 19.15 | 1.915 | 2600 | 0.58 | 7.49 | 0.749 | |
| | | | | 60 | | | 15.27 | 1.527 | 3200 | 0.49 | 6.09 | 0.609 | |
| 9IDD5(L)-200F-A | 9IDD5(L)-200F-AT | 200 | 3ø 415 | 50 | 2 | Cont. | 17.01 | 1.701 | 2600 | 0.55 | 7.49 | 0.749 | – |
| | | | | 60 | | | 13.45 | 1.345 | 3200 | 0.45 | 6.09 | 0.609 | |
| | | | 3ø 440 | 50 | 2 | Cont. | 18.87 | 1.887 | 2600 | 0.57 | 7.49 | 0.749 | |
| | | | | 60 | | | 14.87 | 1.487 | 3200 | 0.46 | 6.09 | 0.609 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code G, K, L contain a built-in thermal protector.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

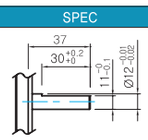
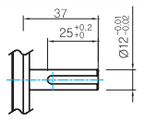
## Dimensions

### LEAD WIRE TYPE

● MOTOR MODEL: 9IDD□-200F-A (GENERAL FAN)

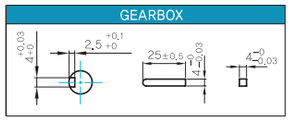



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9IDD□-200F-A | |
| KEY TYPE |  |
| 9IDK□-200F-A | |

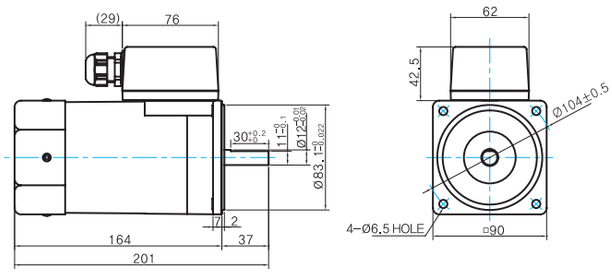
● KEY SPEC

GEARBOX



### TERMINAL BOX TYPE

● MOTOR MODEL: 9IDD□-200F-AT (GENERAL FAN)



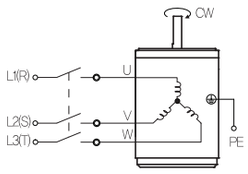
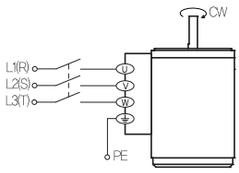

### WEIGHT

| PART | WEIGHT(Kg) |
|---|---|
| MOTOR | 3.8 |

## Motor Images

| 9IDD□-200F-A | 9IDD□-200F-AT |
|---|---|
| | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|   * **CCW Direction:** Change any two connections among R, S and T. |   * **CCW Direction:** Change any two connections among R, S and T. |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.

# Reversible Motor

## Index


| | |
|---|---|
| Outline of Reversible Motor | B-77 |
| Reversible Motor 6W (□60mm) | B-79 |
| Reversible Motor 6W (□70mm) | B-81 |
| Reversible Motor 10W (□70mm) | B-83 |
| Reversible Motor 15W (□70mm) | B-85 |
| Reversible Motor 15W (□80mm) | B-87 |
| Reversible Motor 25W (□80mm) | B-90 |
| Reversible Motor 40W (□90mm) | B-93 |
| Reversible Motor 60W (□90mm) | B-96 |
| Reversible Motor 90W (□90mm) | B-100 |
| Reversible Motor 120W (□90mm) | B-104 |
| Reversible Motor 180W (□90mm) | B-108 |

## Outline of Reversible Motor

### Suitable for Bi-directional Continuous Operation

- Reversible motors are designed for applications where frequent changes of direction is required. It is capacitor run type and single phase induction motor. So its basic features including speed, torque and voltage are same with induction motors. For the functions of frequent bi-directional operation within short time, the temporary brake is employed.

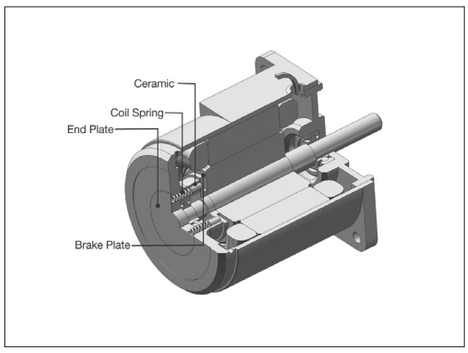
### The Rating Time: 30 Minutes

- Reversible motors are designed for bi-directional operation within a short time so they can't avoid very high loss of input. So generally their temperature rising could be more severe than the induction motors. As a result, the rated operating time could be limited to 30 minutes. But please be informed that depending on the operating condition, they can be operated for more than 30 minutes if they are operated intermittently.

### Brake Mechanism of the Reversible Motor

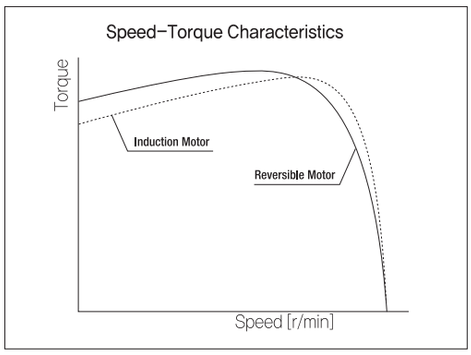
- A reversible motor employed a simple and built-in brake mechanism for the following purposes: (1) To improve the frequent and instant reversing function by applying a friction load (2) To reduce overrun

- The coil spring applies constant pressure so that the ceramic (brake block) slides toward the brake plate. This mechanism provides some degree of holding brake force, but there is limit in the force due to the mechanism's structure. The brake force is approximately 10% of the motor's output.




### Speed-Torque Characteristics

- The reversible motor is a single phase induction motor of capacitor run type which has the same characteristics as an induction motor. The reversible motor has a higher starting torque than an induction motor in order to improve the instant reversing characteristics.

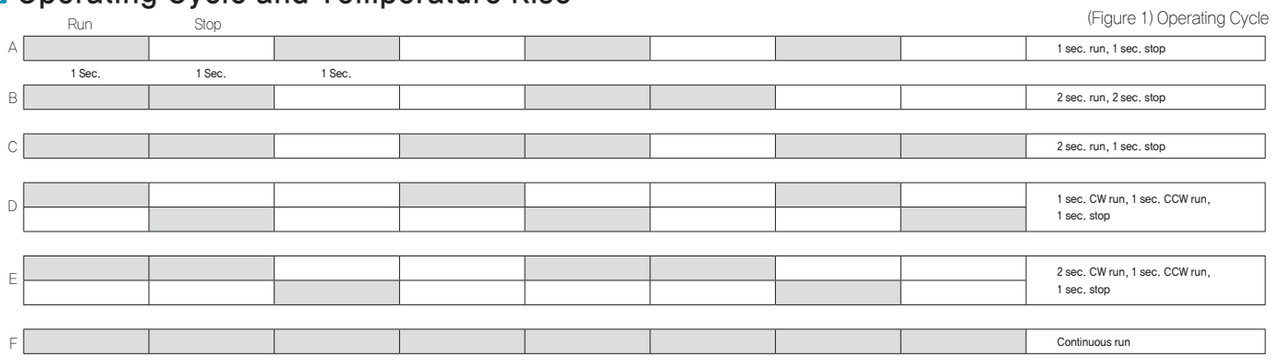



### Operation Time and Temperature Rise

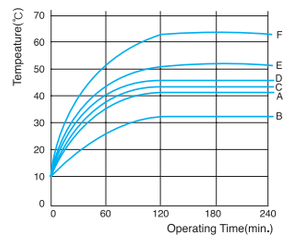
- The rating time of reversible motor is 30 minutes. But when the motor is operated intermittently for a short period of time, the operation time may vary depending on the operating conditions. The intermittent operation for a short period of time will cause a considerable flow of electric current in starting or reversing causing greater heat generation. But the motor's temperature rise can be controlled by keeping the motor at rest without using for a longer time by enhancing its natural cooling capability. Generally if the temperature of motor case remains below 90℃ constantly, the continuous operation is possible under unchanged condition considering insulation class of coil winding. The lower a temperature is, the longer the life time of bearing grease is.

### Operating Cycle and Temperature Rise

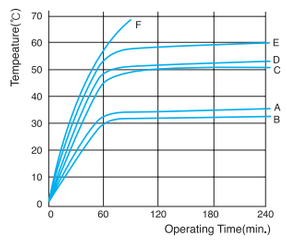
(Figure 1) Operating Cycle



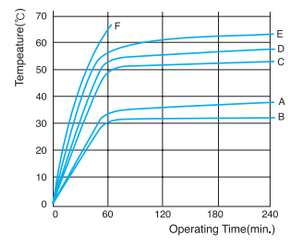
〈Figure2〉 7RDD □ -6



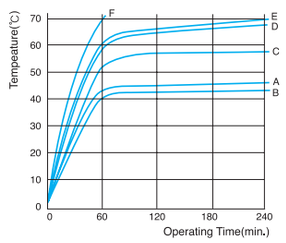

〈Figure3〉 7RDD □ -10



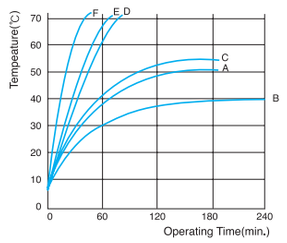

〈Figure4〉 8RDD □ -15



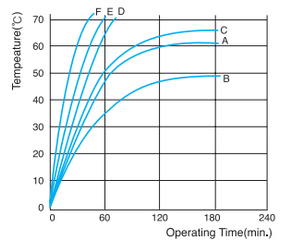

〈Figure5〉 8RDD □ -25




〈Figure6〉 9RDD □ -40




〈Figure7〉 9RDD □ -60F

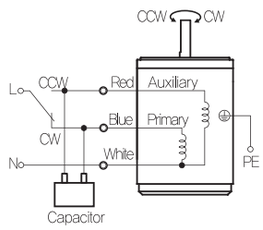



## General Specifications

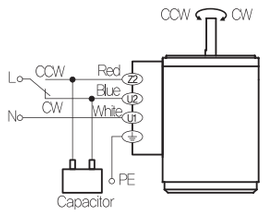
| Item | Specification |
|---|---|
| Insulation Resistance | 100MΩ or more when DC500V MEGA is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity. |
| Dielectric Strength | Sufficient to withstand 1.5KV at 50Hz and 60Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity. |
| Temperature Rise | Temperature rise of windings are 80℃ or less measured by the resistance change method after rated motor operation with connecting a gearbox or equivalent heat radiation plate. |
| Insulation Class | Class B [130℃] |
| Overheat Protection | Operating temperature (Built-in thermal protector type motor): Open 120℃±5℃, Close 90℃±5℃ |
| Ambient Temperature | -10℃~+40℃ (Three phase 220VAC: -10℃~+50℃) |
| Ambient Humidity | 85% maximum |

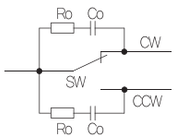
## Connection Diagrams

**Lead Wire Type**




**Terminal Box Type**




| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

# 6W Reversible Motor 6W(□60mm)

## Motor Specification

| Model<br>6RDG*-6G(-T): Gear Type Shaft<br>6RDD*-6(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | kgfcm N.m | | Speed | Current | Torque kgfcm N.m | | |
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | | | r/min | A | | | μF / VAC |
| 6RDG1(A)-6G | 6RDG1(A)-6G-T | 6 | 1ø 110 | 60 | 4 | 30min. | 0.60 | 0.060 | 1550 | 0.25 | 0.38 | 0.038 | 3.0 / 250 |
| 6RDG2(D)-6G | 6RDG2(D)-6G-T | 6 | 1ø 220 | 60 | 4 | 30min. | 0.62 | 0.062 | 1550 | 0.15 | 0.38 | 0.038 | 1.0 / 450 |
| 6RDGE-6G | 6RDGE-6G-T | 6 | 1ø 220 | 50 | 4 | 30min. | 0.50 | 0.050 | 1200 | 0.10 | 0.49 | 0.049 | 0.7 / 450 |
| | | | 1ø 240 | | | | 0.55 | 0.055 | | 0.11 | 0.49 | 0.049 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
3) Impedance Protected Type

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| 6RDG*-6G | 6GBD□MH | kgfcm | 0.9 | 1.1 | 1.5 | 1.8 | 2.3 | 2.7 | 3.1 | 3.8 | 4.6 | 5.5 | 5.5 | 6.9 | 8.3 | 9.9 | 11.0 | 12.4 | 14.9 | 18.7 | 22.4 | 24.9 | 30.0 | 30.0 | 30.0 |
| | | N.m | 0.09 | 0.11 | 0.15 | 0.18 | 0.22 | 0.27 | 0.30 | 0.37 | 0.45 | 0.54 | 0.54 | 0.67 | 0.81 | 0.97 | 1.08 | 1.22 | 1.46 | 1.83 | 2.19 | 2.44 | 2.94 | 2.94 | 2.94 |

| Motor Model | Gearbox Model | Gear Ratio | 200 | 250 |
|---|---|---|---|---|
| | | r/min | 9 | 7.2 |
| 6RDG*-6G | 6GBD□MH | kgfcm | 30.0 | 30.0 |
| | | N.m | 2.94 | 2.94 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 |
| 6RDG*-6G | 6GBD□MH | kgfcm | 1.2 | 1.4 | 2.0 | 2.4 | 3.0 | 3.6 | 3.9 | 4.9 | 5.9 | 7.1 | 7.1 | 8.9 | 10.7 | 12.8 | 14.2 | 16.1 | 19.3 | 24.1 | 28.9 | 30.0 | 30.0 | 30.0 | 30.0 |
| | | N.m | 0.12 | 0.14 | 0.19 | 0.23 | 0.29 | 0.35 | 0.39 | 0.48 | 0.58 | 0.70 | 0.70 | 0.87 | 1.05 | 1.25 | 1.39 | 1.57 | 1.89 | 2.36 | 2.83 | 2.94 | 2.94 | 2.94 | 2.94 |

| Motor Model | Gearbox Model | Gear Ratio | 200 | 250 |
|---|---|---|---|---|
| | | r/min | 7.5 | 6 |
| 6RDG*-6G | 6GBD□MH | kgfcm | 30.0 | 30.0 |
| | | N.m | 2.94 | 2.94 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

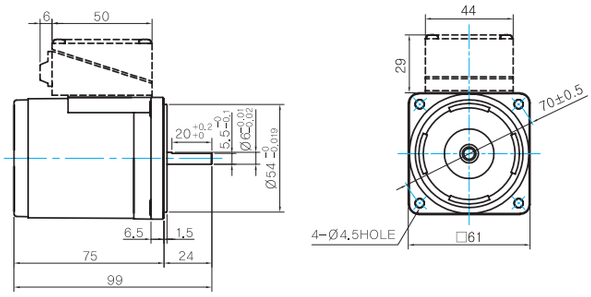
## Motor Images

| 6RDD□-6 | 6RDD□-6-T | 6RDG□-6G+6GBD□MH |
|---|---|---|
| | | |

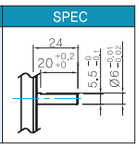
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 6RDD□-6(-T) (NO FAN)




● MOTOR OUTPUT SHAFT

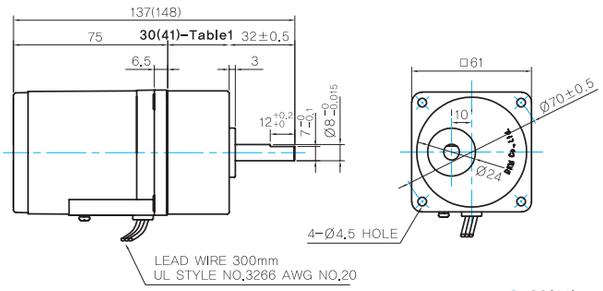
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## GEARED MOTOR

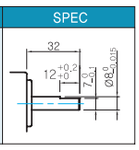
## G TYPE GEARBOX

● MOTOR MODEL: 6RDG□-6G (NO FAN)

● GEARBOX MODEL: 6GBD□MH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

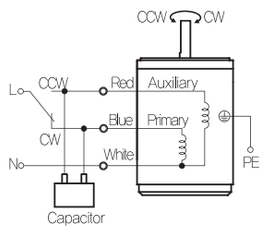
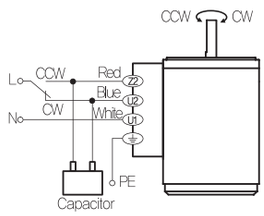
● 30(41)-Table1

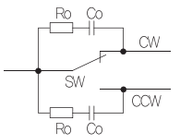
| SIZE(mm) | GEAR RATIO |
|---|---|
| 30 | 6GBD3MH - 6GBD18MH |
| 41 | 6GBD20MH - 6GBD250MH |

## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 0.7 |
| GEAR BOX | 6GBD3MH ~ 6GBD18MH | 0.3 |
| | 6GBD20MH ~ 6GBD40MH | 0.32 |
| | 6GBD50MH ~ 6GBD250MH | 0.34 |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 6W Reversible Motor 6W(□70mm)

## Motor Specification

| Model<br>7RDG*-6G(-T): Gear Type Shaft<br>7RDD*-6(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 7RDG1(A)-6G | 7RDG1(A)-6G-T | 6 | 1ø 110 | 60 | 4 | 30min. | 0.56 | 0.056 | 1600 | 0.27 | 0.37 | 0.037 | 3.0 / 250 |
| 7RDG2(D)-6G | 7RDG2(D)-6G-T | 6 | 1ø 220 | 60 | 4 | 30min. | 0.75 | 0.075 | 1600 | 0.17 | 0.37 | 0.037 | 1.0 / 450 |
| 7RDGE-6G | 7RDGE-6G-T | 6 | 1ø 220 | 50 | 4 | 30min. | 0.61 | 0.061 | 1250 | 0.15 | 0.47 | 0.047 | 0.8 / 450 |
| | | | 1ø 240 | | | | 0.72 | 0.072 | | 0.17 | 0.47 | 0.047 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 |
| 7RDG*-6G | 7GBK□ BMH | kgfcm | 0.9 | 1.1 | 1.5 | 1.8 | 2.2 | 2.7 | 3.0 | 3.7 | 4.4 | 5.3 | 5.3 | 6.7 | 8.0 | 9.6 | 10.7 | 12.1 | 14.5 | 18.1 | 21.7 | 24.1 | 28.9 | 36.2 |
| | | N.m | 0.09 | 0.10 | 0.14 | 0.17 | 0.22 | 0.26 | 0.29 | 0.36 | 0.43 | 0.52 | 0.52 | 0.65 | 0.78 | 0.94 | 1.05 | 1.18 | 1.42 | 1.77 | 2.13 | 2.36 | 2.83 | 3.54 |

| Motor Model | Gearbox Model | Gear Ratio | 180 | 200 |
|---|---|---|---|---|
| | | r/min | 10 | 9 |
| 7RDG*-6G | 7GBK□ BMH | kgfcm | 43.4 | 48.2 |
| | | N.m | 4.25 | 4.72 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 |
| 7RDG*-6G | 7GBK□ BMH | kgfcm | 1.1 | 1.3 | 1.8 | 2.2 | 2.7 | 3.3 | 3.6 | 4.6 | 5.5 | 6.6 | 6.6 | 8.2 | 9.8 | 11.8 | 13.1 | 14.8 | 17.8 | 22.3 | 26.7 | 29.7 | 35.6 | 44.5 |
| | | N.m | 0.107 | 0.13 | 0.18 | 0.21 | 0.27 | 0.32 | 0.36 | 0.45 | 0.54 | 0.64 | 0.64 | 0.80 | 0.96 | 1.16 | 1.29 | 1.45 | 1.74 | 2.18 | 2.62 | 2.91 | 3.49 | 4.36 |

| Motor Model | Gearbox Model | Gear Ratio | 180 | 200 |
|---|---|---|---|---|
| | | r/min | 8 | 7.5 |
| 7RDG*-6G | 7GBK□ BMH | kgfcm | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

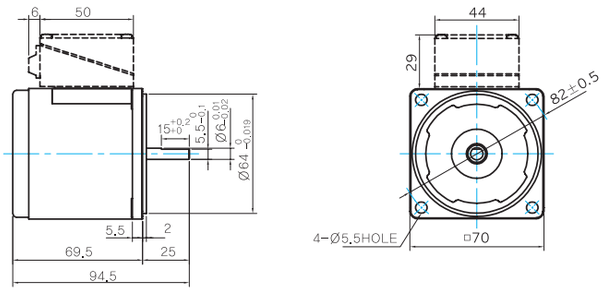
## Motor Images

| 7RDD□-6 | 7RDD□-6-T | 7RDG□-6G+7GBK□BMH |
|---|---|---|
| | | |

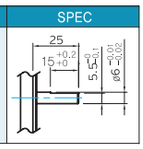
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7RDD□-6(-T) (NO FAN)



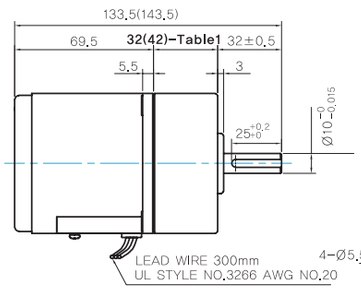

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

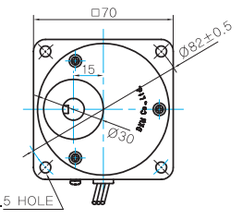
## GEARED MOTOR

### G TYPE GEARBOX

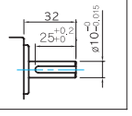
● MOTOR MODEL: 7RDG□-6G (NO FAN)



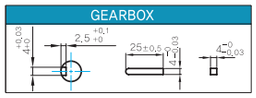

● GEARBOX MODEL: 7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

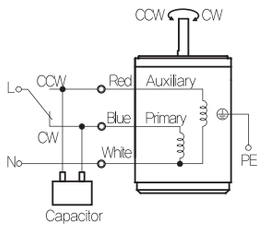
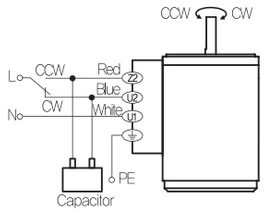
### WEIGHT

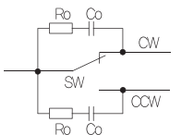
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 0.83 |
| GEAR BOX | 7GBK3BMH ~ 7GBK18BMH | 0.38 |
| | 7GBK20BMH ~ 7GBK40BMH | 0.48 |
| | 7GBK50MH ~ 7GBK200MH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH – 7GBK18BMH |
| 42 | 7GBK20BMH – 7GBK200BMH |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 10W Reversible Motor 10W(□70mm)

## Motor Specification

| Model<br>7RDG*-10G(-T): Gear Type Shaft<br>7RDD*-10(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 7RDG1(A)-10G | 7RDG1(A)-10G-T | 10 | 1ø 110 | 60 | 4 | 30min. | 0.70 | 0.070 | 1550 | 0.31 | 0.63 | 0.063 | 3.5 / 250 |
| 7RDG2(D)-10G | 7RDG2(D)-10G-T | 10 | 1ø 220 | 60 | 4 | 30min. | 0.92 | 0.092 | 1550 | 0.20 | 0.63 | 0.063 | 1.2 / 450 |
| 7RDGE-10G | 7RDGE-10G-T | 10 | 1ø 220 | 50 | 4 | 30min. | 0.78 | 0.078 | 1200 | 0.17 | 0.81 | 0.081 | 1.0 / 450 |
| | | | 1ø 240 | | | | 0.94 | 0.094 | | 0.18 | 0.81 | 0.081 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 |
| 7RDG*-10G | 7GBK□ BMH | kgfcm | 1.5 | 1.8 | 2.5 | 3.1 | 3.8 | 4.6 | 5.1 | 6.4 | 7.6 | 9.2 | 9.2 | 11.5 | 13.8 | 16.5 | 18.3 | 20.7 | 24.9 | 31.1 | 37.3 | 41.5 | 49.8 | 50.0 |
| | | N.m | 0.15 | 0.18 | 0.25 | 0.30 | 0.37 | 0.45 | 0.50 | 0.62 | 0.75 | 0.90 | 0.90 | 1.12 | 1.35 | 1.62 | 1.80 | 2.03 | 2.44 | 3.05 | 3.66 | 4.06 | 4.88 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 180 | 200 |
|---|---|---|---|---|
| | | r/min | 10 | 9 |
| 7RDG*-10G | 7GBK□ BMH | kgfcm | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 |
| 7RDG*-10G | 7GBK□ BMH | kgfcm | 2.0 | 2.4 | 3.3 | 3.9 | 4.9 | 5.9 | 6.6 | 8.2 | 9.9 | 11.8 | 11.9 | 14.8 | 17.8 | 21.3 | 23.7 | 26.8 | 32.1 | 40.2 | 48.2 | 50.0 | 50.0 | 50.0 |
| | | N.m | 0.19 | 0.23 | 0.32 | 0.39 | 0.48 | 0.58 | 0.64 | 0.81 | 0.97 | 1.16 | 1.16 | 1.45 | 1.74 | 2.09 | 2.32 | 2.62 | 3.15 | 3.94 | 4.72 | 4.90 | 4.90 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 180 | 200 |
|---|---|---|---|---|
| | | r/min | 8 | 7.5 |
| 7RDG*-10G | 7GBK□ BMH | kgfcm | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

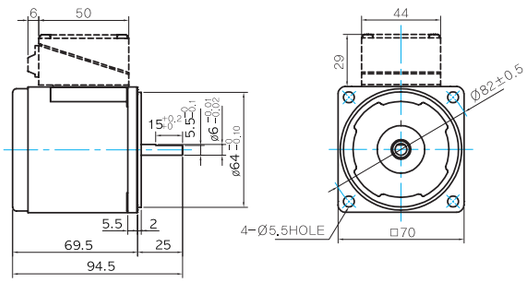
## Motor Images

| 7RDD□-10 | 7RDD□-10-T | 7RDG□-10G+7GBK□BMH |
|---|---|---|
| | | |

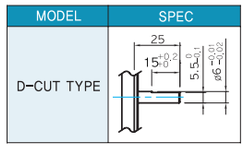
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7RDD□-10(-T) (NO FAN)




● MOTOR OUTPUT SHAFT

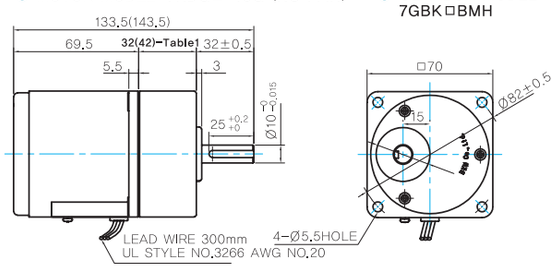
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## GEARED MOTOR

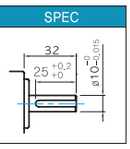
### G TYPE GEARBOX

● MOTOR MODEL: 7RDG□-10G (NO FAN)

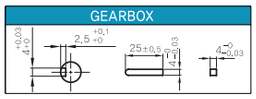
● GEARBOX MODEL: 7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

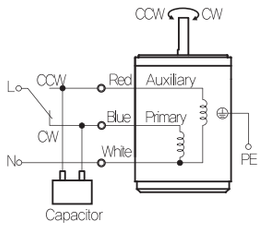
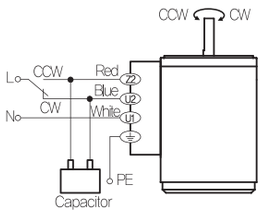
### WEIGHT

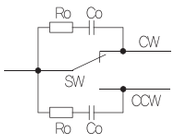
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 0.83 |
| GEAR BOX | 7GBK3BMH ~ 7GBK18BMH | 0.38 |
| | 7GBK20BMH ~ 7GBK40BMH | 0.48 |
| | 7GBK50MH ~ 7GBK200MH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH – 7GBK18BMH |
| 42 | 7GBK20BMH – 7GBK200BMH |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |



| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 15W Reversible Motor 15W(□70mm)

## Motor Specification

| Model<br>7RDG*-15G(-T): Gear Type Shaft<br>7RDD*-15(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 7RDG1(A)-15G | 7RDG1(A)-15G-T | 15 | 1ø 110 | 60 | 4 | 30min. | 1.35 | 0.135 | 1550 | 0.49 | 0.94 | 0.094 | 6.0 / 250 |
| 7RDG2(D)-15G | 7RDG2(D)-15G-T | 15 | 1ø 220 | 60 | 4 | 30min. | 1.23 | 0.123 | 1600 | 0.22 | 0.91 | 0.091 | 1.5 / 450 |
| 7RDGE-15G | 7RDGE-15G-T | 15 | 1ø 220 | 50 | 4 | 30min. | 1.07 | 0.107 | 1200 | 0.19 | 1.22 | 0.122 | 1.2 / 450 |
| | | | 1ø 240 | | | | 1.28 | 0.128 | | 0.21 | 1.22 | 0.122 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 |
| 7RDG*-15G | 7GBK□ BMH | kgfcm | 2.2 | 2.7 | 3.7 | 4.4 | 5.5 | 6.7 | 7.4 | 9.2 | 11.1 | 13.3 | 13.3 | 16.7 | 20.0 | 24.0 | 26.7 | 30.1 | 36.2 | 45.2 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 0.22 | 0.26 | 0.36 | 0.43 | 0.54 | 0.65 | 0.72 | 0.91 | 1.09 | 1.30 | 1.31 | 1.63 | 1.96 | 2.35 | 2.61 | 2.95 | 3.54 | 4.43 | 4.90 | 4.90 | 4.90 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 180 | 200 |
|---|---|---|---|---|
| | | r/min | 10 | 9 |
| 7RDG*-15G | 7GBK□ BMH | kgfcm | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 |
| 7RDG*-15G | 7GBK□ BMH | kgfcm | 3.0 | 3.6 | 4.9 | 5.9 | 7.4 | 8.9 | 9.9 | 12.3 | 14.8 | 17.8 | 17.8 | 22.2 | 26.7 | 32.0 | 35.6 | 40.2 | 48.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 0.29 | 0.35 | 0.48 | 0.58 | 0.72 | 0.87 | 0.97 | 1.21 | 1.45 | 1.74 | 1.74 | 2.18 | 2.61 | 3.14 | 3.48 | 3.94 | 4.72 | 4.90 | 4.90 | 4.90 | 4.90 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 180 | 200 |
|---|---|---|---|---|
| | | r/min | 8 | 7.5 |
| 7RDG*-15G | 7GBK□ BMH | kgfcm | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

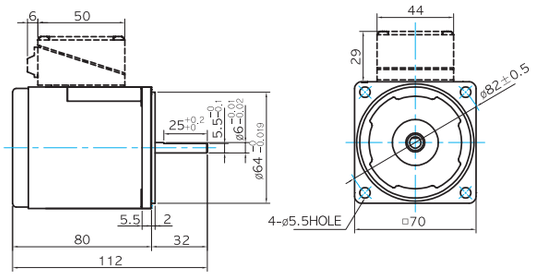
## Motor Images

| 7RDD□-15 | 7RDD□-15-T | 7RDG□-15G+7GBK□BMH |
|---|---|---|
| | | |

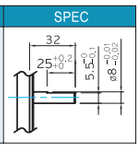
# Dimensions

## MOTOR ONLY

- MOTOR MODEL: 7RDD□-15(-T) (NO FAN)



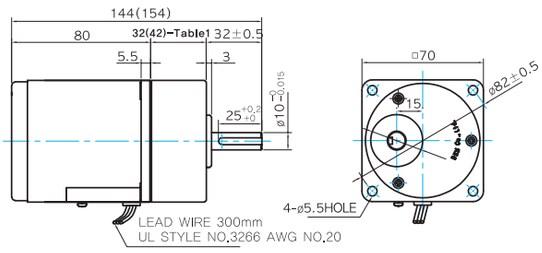

- MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

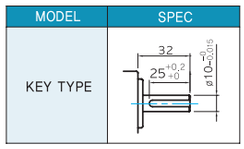
## GEARED MOTOR

### G TYPE GEARBOX

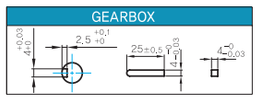
- MOTOR MODEL: 7RDG□-15G (NO FAN)
- GEARBOX MODEL: 7GBK□BMH




- GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

- KEY SPEC

| GEARBOX |
|---|
|  |

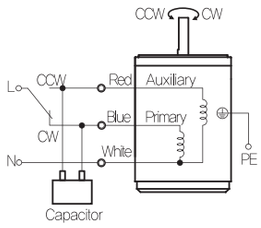
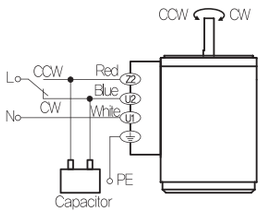
### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.10 |
| GEAR BOX | 7GBK3BMH ~ 7GBK18BMH | 0.38 |
| | 7GBK20BMH ~ 7GBK40BMH | 0.48 |
| | 7GBK50MH ~ 7GBK200MH | 0.53 |

- 32(42)-Table1

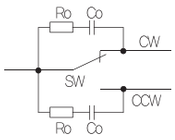
| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH - 7GBK18BMH |
| 42 | 7GBK20BMH - 7GBK200BMH |

# Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |








| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 15W Reversible Motor 15W(□80mm)

## Motor Specification

| Model<br>8RDG*-15□(-T): Gear Type Shaft<br>8RDD*-15(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 8RDG1(A)-15□ | 8RDG1(A)-15□-T | 15 | 1ø 110 | 60 | 4 | 30min. | 1.58 | 0.158 | 1600 | 0.55 | 0.91 | 0.091 | 6.0 / 250 |
| 8RDG2(D)-15□ | 8RDG2(D)-15□-T | 15 | 1ø 220 | 60 | 4 | 30min. | 1.51 | 0.151 | 1600 | 0.24 | 0.91 | 0.091 | 1.5 / 450 |
| 8RDGE-15□ | 8RDGE-15□-T | 15 | 1ø 220 | 50 | 4 | 30min. | 1.49 | 0.149 | 1300 | 0.23 | 1.12 | 0.112 | 1.5 / 450 |
| | | | 1ø 240 | | | | 1.77 | 0.177 | | 0.25 | 1.12 | 0.112 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| 8RDG*-15G | 8GBK□BMH | kgfcm | 2.2 | 2.7 | 3.7 | 4.4 | 5.5 | 6.7 | 7.4 | 9.2 | 11.1 | 13.3 | 13.3 | 16.7 | 20.0 | 24.0 | 26.7 | 30.1 | 36.2 | 45.2 | 54.2 | 60.3 | 72.3 | 80.0 | 80.0 |
| | | N.m | 0.22 | 0.26 | 0.36 | 0.43 | 0.54 | 0.65 | 0.72 | 0.91 | 1.09 | 1.30 | 1.31 | 1.63 | 1.96 | 2.35 | 2.61 | 2.95 | 3.54 | 4.43 | 5.32 | 5.91 | 7.09 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|
| | | r/min | 9 | 7 | 6 | 5 |
| 8RDG*-15G | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 8RDG*-15W | 8WD□BL/□BR/□BRL | kgfcm | 7.5 | 8.8 | 10.5 | 12.2 | 16.0 | 18.1 | 21.0 | 27.4 | 30.1 |
| | | N.m | 0.73 | 0.86 | 1.03 | 1.19 | 1.57 | 1.77 | 2.06 | 2.68 | 2.95 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 |
| 8RDG*-15G | 8GBK□BMH | kgfcm | 2.6 | 3.2 | 4.4 | 5.3 | 6.6 | 7.9 | 8.8 | 11.0 | 13.1 | 15.8 | 15.8 | 19.8 | 23.7 | 28.4 | 31.6 | 35.7 | 42.9 | 53.6 | 64.3 | 71.4 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.26 | 0.31 | 0.43 | 0.52 | 0.64 | 0.77 | 0.86 | 1.07 | 1.29 | 1.55 | 1.55 | 1.94 | 2.32 | 2.79 | 3.10 | 3.50 | 4.20 | 5.25 | 6.30 | 7.00 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|
| | | r/min | 7.5 | 6 | 5 | 4 |
| 8RDG*-15G | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 |

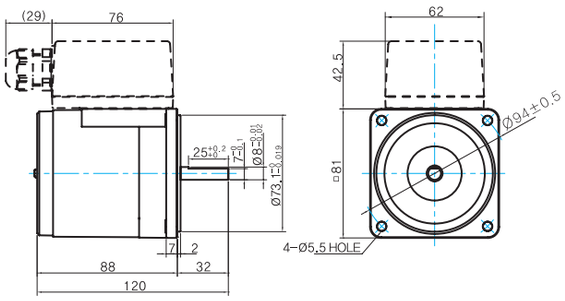
| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 8RDG*-15W | 8WD□BL/□BR/□BRL | kgfcm | 7.5 | 8.8 | 10.5 | 12.2 | 16.0 | 18.1 | 21.0 | 27.4 | 30.1 |
| | | N.m | 0.73 | 0.86 | 1.03 | 1.19 | 1.57 | 1.77 | 2.06 | 2.68 | 2.95 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

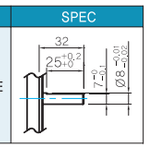
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 8RDD□-15(-T) (NO FAN)

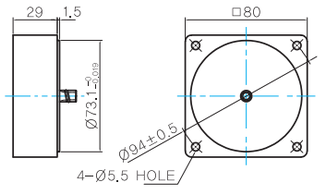



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## INTER-DECIMAL GEARBOX

● MODEL: 8XD10□□

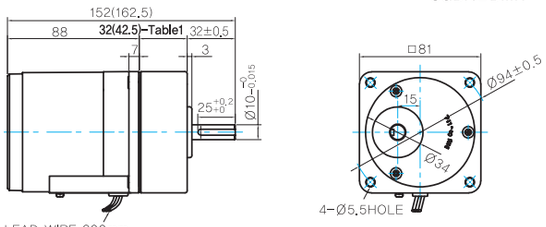



## GEARED MOTOR

## G TYPE GEARBOX

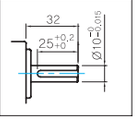
● MOTOR MODEL: 8RDG□-15G (NO FAN)

● GEARBOX MODEL: 8GBK□BMH

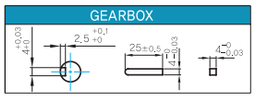



LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC



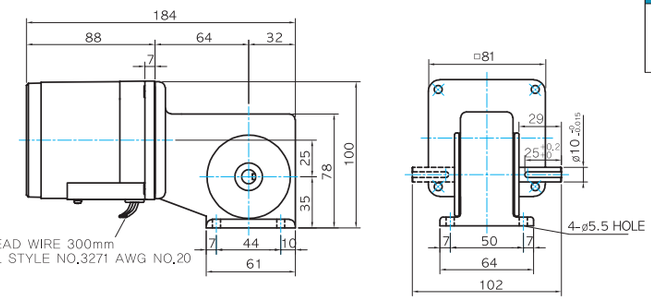

● 32(42.5)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 8GBK3BMH - 8GBK18BMH |
| 42.5 | 8GBK20BMH - 8GBK360BMH |

## W TYPE GEARBOX

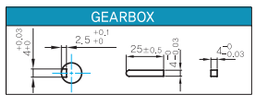
● MOTOR MODEL: 8RDG□-15W (NO FAN)

● GEARBOX MODEL: 8WD□BL/BR/BRL




LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.56 |
| GEAR BOX | 8GBK3BMH ~ 8GBK18BMH | 0.56 |
| | 8GBK20BMH ~ 8GBK40BMH | 0.65 |
| | 8GBK50BMH ~ 8GBK360BMH | 0.72 |
| | 8WD□BL/BR/BRL | 0.68 |
| | 8XD10□□ | 0.45 |

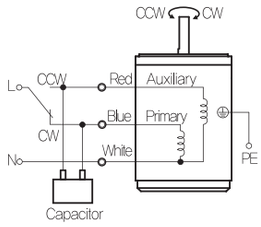
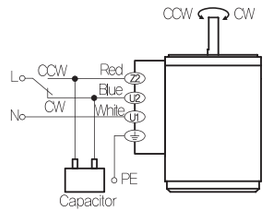
# Motor Images

| 8RDD□-15 | 8RDD□-15-T | 8RDG□-15G+8GBK□BMH | 8RDG□-15W+8WD□BL |
|---|---|---|---|
| | | | |

# B AC Motors

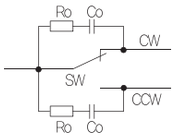
## Reversible Motor 15W(□80mm)

### Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |









| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of the motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 25W Reversible Motor 25W(□ 80mm)

## Motor Specification

| Model<br>8RDG*-25□(-T): Gear Type Shaft<br>8RDD*-25(-T): D-Cut Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Speed | Current | Torque | | |
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | r/min | A | kgfcm | N.m | μF / VAC |
| 8RDG1(A)-25□ | 8RDG1(A)-25□-T | 25 | 1ø 110 | 60 | 4 | 30min. | 2.40 | 0.240 | 1600 | 0.74 | 1.52 | 0.152 | 10.0 / 250 |
| 8RDG2(D)-25□ | 8RDG2(D)-25□-T | 25 | 1ø 220 | 60 | 4 | 30min. | 2.47 | 0.247 | 1600 | 0.35 | 1.52 | 0.152 | 2.5 / 450 |
| 8RDGE-25□ | 8RDGE-25□-T | 25 | 1ø 220 | 50 | 4 | 30min. | 1.97 | 0.197 | 1250 | 0.28 | 1.95 | 0.195 | 2.0 / 450 |
| | | | 1ø 240 | | | | 2.49 | 0.249 | | 0.31 | 1.95 | 0.195 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 |
| 8RDG*-25G | 8GBK□ BMH | kgfcm | 3.7 | 4.4 | 6.2 | 7.4 | 9.2 | 11.1 | 12.3 | 15.4 | 18.5 | 22.2 | 22.2 | 27.8 | 33.3 | 40.0 | 44.4 | 50.2 | 60.3 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.36 | 0.43 | 0.60 | 0.72 | 0.91 | 1.09 | 1.21 | 1.51 | 1.81 | 2.17 | 2.18 | 2.72 | 3.27 | 3.92 | 4.35 | 4.92 | 5.91 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 12 | 10 | 9 | 7 | 6 | 5 |
| 8RDG*-25G | 8GBK□ BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 8RDG*-25W | 8WD□BL/□BR/□BRL | kgfcm | 12.5 | 14.6 | 17.6 | 20.3 | 26.6 | 30.1 | 35.1 | 45.7 | 50.2 |
| | | N.m | 1.22 | 1.43 | 1.72 | 1.99 | 2.61 | 2.95 | 3.44 | 4.47 | 4.92 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 |
| 8RDG*-25G | 8GBK□ BMH | kgfcm | 4.4 | 5.3 | 7.3 | 8.8 | 11.0 | 13.1 | 14.6 | 18.3 | 21.9 | 26.3 | 26.3 | 32.9 | 39.5 | 47.4 | 52.7 | 59.5 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.43 | 0.52 | 0.72 | 0.86 | 1.07 | 1.29 | 1.43 | 1.79 | 2.15 | 2.58 | 2.58 | 3.23 | 3.87 | 4.65 | 5.16 | 5.83 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 10 | 8 | 7.5 | 6 | 5 | 4 |
| 8RDG*-25G | 8GBK□ BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 8RDG*-25W | 8WD□BL/□BR/□BRL | kgfcm | 14.8 | 17.3 | 20.8 | 24.0 | 31.6 | 35.7 | 41.6 | 54.1 | 59.5 |
| | | N.m | 1.45 | 1.70 | 2.04 | 2.35 | 3.09 | 3.50 | 4.07 | 5.30 | 5.83 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

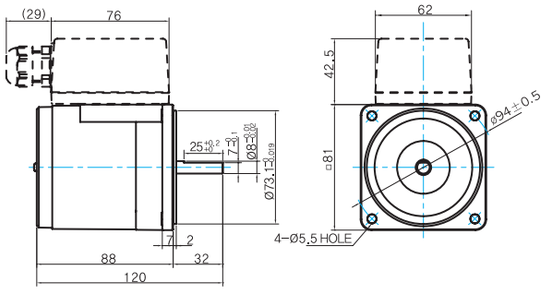
# B AC Motors

## Reversible Motor 25W(□80mm)

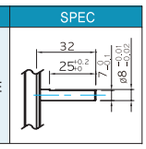
## Dimensions

### MOTOR ONLY

● MOTOR MODEL: 8RDD□-25(-T) (NO FAN)

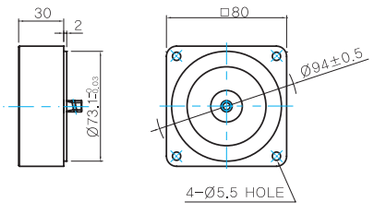



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

### INTER-DECIMAL GEARBOX

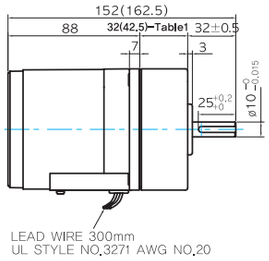
● MODEL: 8XD10□□



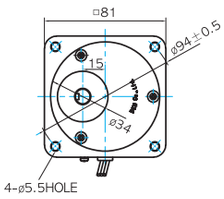

## GEARED MOTOR

### G TYPE GEARBOX

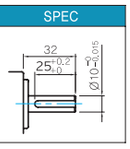
● MOTOR MODEL: 8RDG□-25G (NO FAN)



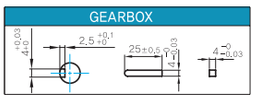

● GEARBOX MODEL: 8GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

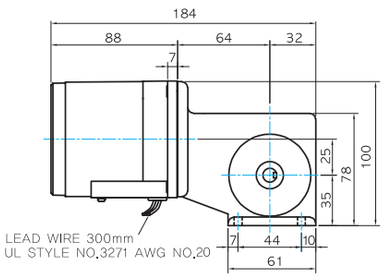



● 30(40)-Table1

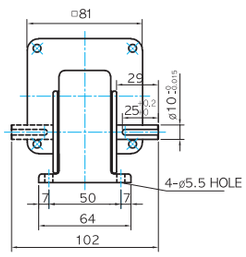
| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 8GBK3BMH – 8GBK18BMH |
| 42.5 | 8GBK20BMH – 8GBK360BMH |

### W TYPE GEARBOX

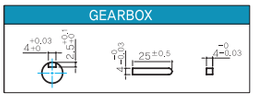
● MOTOR MODEL: 8RDG□-25W (NO FAN)




● GEARBOX MODEL: 8WD□BL/BR/BRL




● KEY SPEC



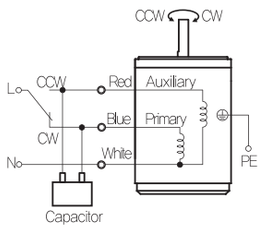
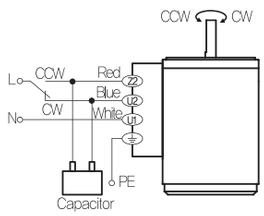

### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.56 |
| GEAR BOX | 8GBK3BMH ~ 8GBK18BMH | 0.56 |
| | 8GBK20BMH ~ 8GBK40BMH | 0.65 |
| | 8GBK50BMH ~ 8GBK360BMH | 0.72 |
| | 8WD□BL/BR/BRL | 0.68 |
| | 8XD10□□ | 0.45 |

## Motor Images

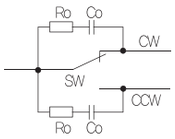
| 8RDD□-25 | 8RDD□-25-T | 8RDG□-25G+8GBK□BMH | 8RDG□-25W+8WD□BL |
|---|---|---|---|
| | | | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |









| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of the motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 40W Reversible Motor 40W(□90mm)

## Motor Specification

| Model<br>9RDG*-40□(-T): Gear Type Shaft<br>9RDD*-40(-T): D-Cut Type Shaft<br>9RDK*-40(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | kgfcm | N.m | Speed | Current | Torque | | |
| | | W | V | Hz | | | | | r/min | A | kgfcm | N.m | μF / VAC |
| Lead Wire Type | Terminal Box Type | | | | | | | | | | | | |
| 9RDG1(A)-40□ | 9RDG1(A)-40□-T | 40 | 1ø 110 | 60 | 4 | 30min. | 4.00 | 0.400 | 1600 | 1.25 | 2.44 | 0.244 | 16.0 / 250 |
| 9RDG2(D)-40□ | 9RDG2(D)-40□-T | 40 | 1ø 220 | 60 | 4 | 30min. | 4.00 | 0.400 | 1600 | 0.61 | 2.44 | 0.244 | 4.0 / 450 |
| 9RDGE-40□ | 9RDGE-40□-T | 40 | 1ø 220 | 50 | 4 | 30min. | 3.20 | 0.320 | 1350 | 0.36 | 2.89 | 0.289 | 3.0 / 450 |
| | | | 1ø 240 | | | | 3.91 | 0.391 | | 0.39 | 2.89 | 0.289 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 |
| 9RDG*-40G | 9GBK□BMH | kgfcm | 3.9 | 5.9 | 7.1 | 9.9 | 11.8 | 14.8 | 17.8 | 19.7 | 24.7 | 29.6 | 35.5 | 35.6 | 44.4 | 53.3 | 64.0 | 71.1 | 80.4 | 96.4 | 100.0 | 100.0 | 100.0 |
| | | N.m | 0.39 | 0.58 | 0.70 | 0.97 | 1.16 | 1.45 | 1.74 | 1.93 | 2.42 | 2.90 | 3.48 | 3.48 | 4.35 | 5.23 | 6.27 | 6.97 | 7.87 | 9.45 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|
| | | r/min | 15 | 12 | 10 | 9 |
| 9RDG*-40G | 9GBK□BMH | kgfcm | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9RDG*-40W | 9WD□BL/□BR/□BRL | kgfcm | 20.0 | 23.4 | 28.1 | 32.4 | 42.6 | 48.2 | 56.1 | 73.1 | 80.4 |
| | | N.m | 1.96 | 2.29 | 2.76 | 3.18 | 4.18 | 4.72 | 5.50 | 7.16 | 7.87 |

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 |
| 9RDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 3.9 | 5.9 | 7.1 | 9.9 | 11.8 | 14.8 | 17.8 | 19.7 | 22.2 | 26.7 | 32.0 | 35.6 | 40.2 | 48.2 | 57.9 | 64.3 | 80.4 | 96.4 | 107.7 |
| | | N.m | 0.39 | 0.58 | 0.70 | 0.97 | 1.16 | 1.45 | 1.74 | 1.93 | 2.18 | 2.61 | 3.14 | 3.48 | 3.94 | 4.72 | 5.67 | 6.30 | 7.87 | 9.45 | 10.56 |

| Motor Model | Gearbox Model | Gear Ratio | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 20 | 18 | 15 | 12 | 10 | 9 |
| 9RDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 129.3 | 143.7 | 172.4 | 200.0 | 200.0 | 200.0 |
| | | N.m | 12.67 | 14.08 | 16.90 | 19.60 | 19.60 | 19.60 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 | 15 |
| 9RDG*-40G | 9GBK□BMH | kgfcm | 4.7 | 7.0 | 8.4 | 11.7 | 14.0 | 17.5 | 21.0 | 23.4 | 29.2 | 35.1 | 42.1 | 42.1 | 52.7 | 63.2 | 75.8 | 84.3 | 95.2 | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 0.46 | 0.69 | 0.82 | 1.15 | 1.37 | 1.72 | 2.06 | 2.29 | 2.86 | 3.44 | 4.12 | 4.13 | 5.16 | 6.19 | 7.43 | 8.26 | 9.33 | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|
| | | r/min | 13.0 | 10.0 | 8.0 | 7 |
| 9RDG*-40G | 9GBK□BMH | kgfcm | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9RDG*-40W | 9WD□BL/□BR/□BRL | kgfcm | 23.7 | 27.7 | 33.3 | 38.4 | 50.5 | 57.1 | 66.5 | 86.6 | 95.2 |
| | | N.m | 2.32 | 2.72 | 3.27 | 3.77 | 4.95 | 5.60 | 6.52 | 8.48 | 9.33 |

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 |
| 9RDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 4.7 | 7.0 | 8.4 | 11.7 | 14.0 | 17.5 | 21.0 | 23.4 | 26.3 | 31.6 | 37.9 | 42.1 | 47.6 | 57.1 | 68.6 | 76.2 | 95.2 | 114.3 | 127.7 |
| | | N.m | 0.46 | 0.69 | 0.82 | 1.15 | 1.37 | 1.72 | 2.06 | 2.29 | 2.58 | 3.10 | 3.72 | 4.13 | 4.67 | 5.60 | 6.72 | 7.47 | 9.33 | 11.20 | 12.51 |

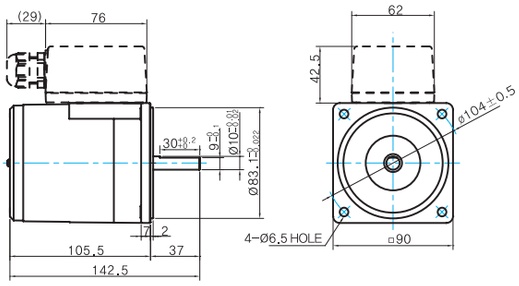
| Motor Model | Gearbox Model | Gear Ratio | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9RDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 153.2 | 170.3 | 200.0 | 200.0 | 200.0 | 200.0 |
| | | N.m | 15.02 | 16.69 | 19.60 | 19.60 | 19.60 | 19.60 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

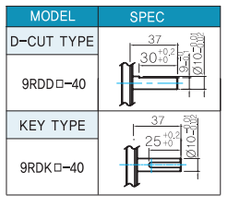
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 9RDD□-40(-T) (NO FAN)

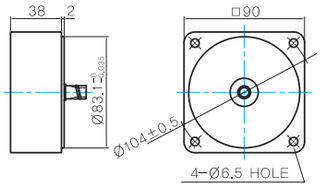



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9RDD□-40 | |
| KEY TYPE | |
| 9RDK□-40 | |

## INTER-DECIMAL GEARBOX

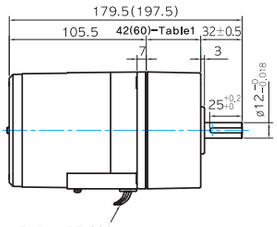
● MODEL: 9XD10□□



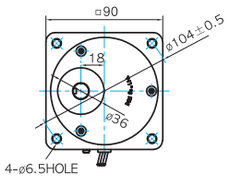

## GEARED MOTOR

## G TYPE GEARBOX

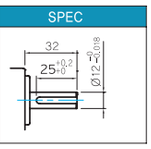
● MOTOR MODEL: 9RDG□-40G (NO FAN)



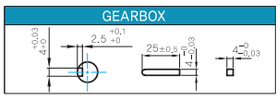

● GEARBOX MODEL: 9GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

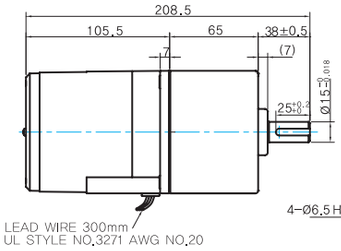



● 42(60)-Table1

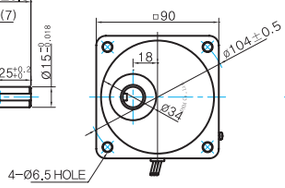
| SIZE(mm) | GEAR RATIO |
|---|---|
| 42 | 9GBK2BMH - 9GBK18BMH |
| 60 | 9GBK20BMH - 9GBK200BMH |

## P TYPE GEARBOX

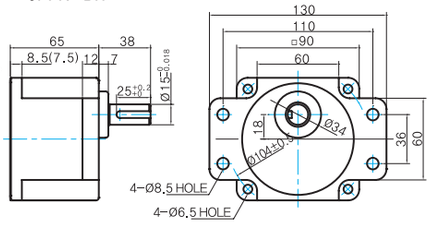
● MOTOR MODEL: 9RDG□-40P (NO FAN)



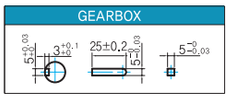

● GEARBOX MODEL: 9PBK□BH



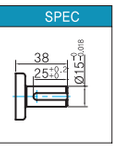

● GEARBOX MODEL: 9PFK□BH




● KEY SPEC

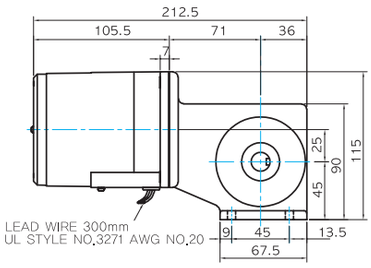



● GEARBOX OUTPUT SHAFT

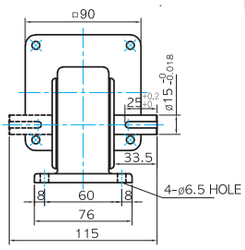
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

## W TYPE GEARBOX

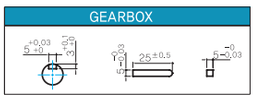
● MOTOR MODEL: 9RDG□-40W (NO FAN)




● GEARBOX MODEL: 9WD□BL/BR/BRL




● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 2.45 |
| GEAR BOX | 9GBK2BMH ~ 9GBK18BMH | 0.78 |
| | 9GBK20BMH ~ 9GBK40BMH | 1.1 |
| | 9GBK50BMH ~ 9GBK200BMH | 1.2 |
| | 9PB(F)K2BH ~ 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH ~ 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH ~ 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH ~ 9PB(F)K200BH | 1.47 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9XD10□□ | 0.6 |

# B AC Motors

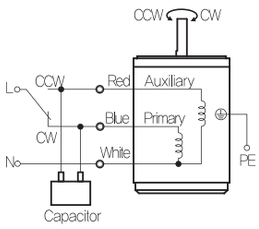
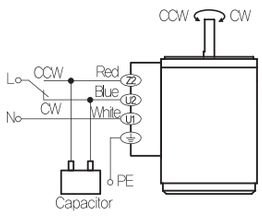
## Reversible Motor 40W(□90mm)

## Motor Images

| 9RDD□-40 | 9RDD□-40-T | 9RDG□-40G+9GBK□BMH | 9RDG□-40P+9PBK□BH |
|---|---|---|---|
| | | | |

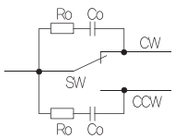
| 9RDG□-40W+9WD□BL |
|---|
| |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |









| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 60W Reversible Motor 60W(□ 90mm)

## Motor Specification

| Model<br>9RDG*-60F□(-T): Gear Type Shaft<br>9RDD*-60F(-T): D-Cut Type Shaft<br>9RDK*-60F(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Speed | Current | Torque | | |
| | | W | V | Hz | | | kgfcm | N.m | r/min | A | kgfcm | N.m | μF / VAC |
| Lead Wire Type | Terminal Box Type | | | | | | | | | | | | |
| 9RDG1(A)-60F□ | 9RDG1(A)-60F□-T | 60 | 1ø 110 | 60 | 4 | 30min. | 5.20 | 0.520 | 1600 | 1.60 | 3.65 | 0.365 | 20.0 / 250 |
| 9RDG2(D)-60F□ | 9RDG2(D)-60F□-T | 60 | 1ø 220 | 60 | 4 | 30min. | 5.19 | 0.519 | 1600 | 0.75 | 3.65 | 0.365 | 5.0 / 450 |
| 9RDGE-60F□ | 9RDGE-60F□-T | 60 | 1ø 220 | 50 | 4 | 30min. | 5.52 | 0.552 | 1300 | 0.59 | 4.50 | 0.450 | 5.0 / 450 |
| | | | 1ø 240 | | | | 6.52 | 0.652 | | 0.64 | 4.50 | 0.450 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9RDG*-60FP | 9PBK□BH | kgfcm | 5.9 | 8.9 | 10.7 | 14.8 | 17.8 | 22.2 | 26.6 | 29.6 | 33.3 | 40.0 | 48.0 | 53.3 | 60.3 | 72.3 | 86.8 | 96.4 | 120.5 | 144.6 | 161.6 | 193.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 0.58 | 0.87 | 1.04 | 1.45 | 1.74 | 2.17 | 2.61 | 2.90 | 3.27 | 3.92 | 4.70 | 5.23 | 5.91 | 7.09 | 8.50 | 9.45 | 11.81 | 14.17 | 15.84 | 19.01 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9RDG*-60FH | 9HBK□BH | kgfcm | – | 8.9 | 10.7 | 14.8 | 17.8 | 22.2 | 26.6 | 29.6 | 33.3 | 40.0 | 48.0 | 53.3 | 60.3 | 72.3 | 86.8 | 96.4 | 120.5 | 144.6 | 161.6 | 193.9 | 215.5 | 258.6 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 0.87 | 1.04 | 1.45 | 1.74 | 2.17 | 2.61 | 2.90 | 3.27 | 3.92 | 4.70 | 5.23 | 5.91 | 7.09 | 8.50 | 9.45 | 11.81 | 14.17 | 15.84 | 19.01 | 21.12 | 25.34 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9RDG*-60FW | 9WD□BL/ | kgfcm | 30.0 | 35.1 | 42.2 | 48.7 | 63.9 | 72.3 | 84.2 | 109.6 | 120.5 |
| | □BR/□BRL | N.m | 2.94 | 3.44 | 4.13 | 4.77 | 6.26 | 7.09 | 8.25 | 10.74 | 11.81 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9RDG*-60FWH | 9WHD | kgfcm | 12.7 | 18.4 | 23.7 | 33.3 | 42.1 | 48.2 | 56.1 | 69.0 | 78.9 | 87.7 | 102.9 |
| | □-030 | N.m | 1.25 | 1.80 | 2.32 | 3.26 | 4.12 | 4.72 | 5.50 | 6.76 | 7.73 | 8.59 | 10.08 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9RDG*-60FP | 9PBK□BH | kgfcm | 7.3 | 10.9 | 13.1 | 18.2 | 21.8 | 27.3 | 32.8 | 36.4 | 41.0 | 49.2 | 59.1 | 65.6 | 74.2 | 89.0 | 106.8 | 118.7 | 148.3 | 178.0 | 198.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 0.71 | 1.07 | 1.28 | 1.78 | 2.14 | 2.68 | 3.21 | 3.57 | 4.02 | 4.82 | 5.79 | 6.43 | 7.27 | 8.72 | 10.47 | 11.63 | 14.54 | 17.45 | 19.49 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9RDG*-60FH | 9HBK□BH | kgfcm | – | 10.9 | 13.1 | 18.2 | 21.8 | 27.3 | 32.8 | 36.4 | 41.0 | 49.2 | 59.1 | 65.6 | 74.2 | 89.0 | 106.8 | 118.7 | 148.3 | 178.0 | 198.9 | 238.7 | 265.2 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.07 | 1.28 | 1.78 | 2.14 | 2.68 | 3.21 | 3.57 | 4.02 | 4.82 | 5.79 | 6.43 | 7.27 | 8.72 | 10.47 | 11.63 | 14.54 | 17.45 | 19.49 | 23.39 | 25.99 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9RDG*-60FW | 9WD□BL/ | kgfcm | 36.9 | 43.2 | 51.9 | 59.9 | 78.7 | 89.0 | 103.6 | 134.9 | 122.4 |
| | □BR/□BRL | N.m | 3.61 | 4.23 | 5.09 | 5.87 | 7.71 | 8.72 | 10.15 | 13.22 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9IDG*-60FWH | 9WHD | kgfcm | 15.1 | 21.8 | 28.1 | 39.5 | 49.9 | 57.1 | 66.5 | 81.7 | 93.5 | 103.9 | 121.9 |
| | □-030 | N.m | 1.48 | 2.14 | 2.75 | 3.87 | 4.89 | 5.60 | 6.52 | 8.01 | 9.16 | 10.18 | 11.95 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft: a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

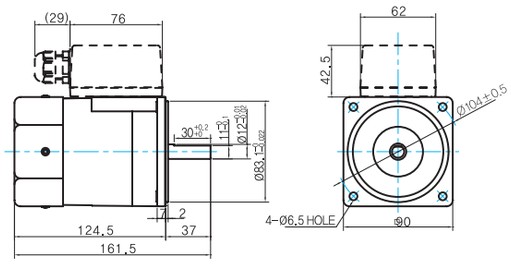
# B AC Motors

## Reversible Motor 60W(□90mm)

## Dimensions

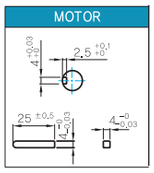
### MOTOR ONLY

● MOTOR MODEL:
9RDD□-60F(-T) (GENERAL FAN)



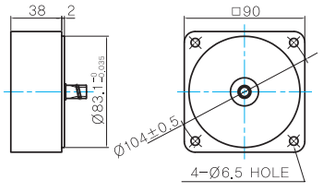

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE | |
| 9RDD□-60F | |
| KEY TYPE | |
| 9RDK□-60F | |




### INTER-DECIMAL GEARBOX

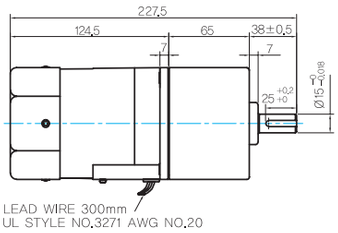
● MODEL: 9XD10□□



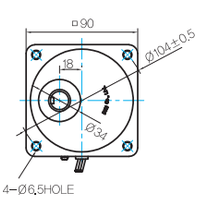

## GEARED MOTOR

### P TYPE GEARBOX

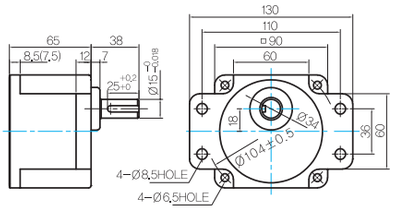
● MOTOR MODEL:
9RDG□-60FP (GENERAL FAN)




● GEARBOX MODEL:
9PBK□BH

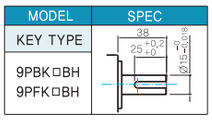



● GEARBOX MODEL:
9PFK□BH



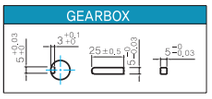

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE | |
| 9PBK□BH<br>9PFK□BH | |



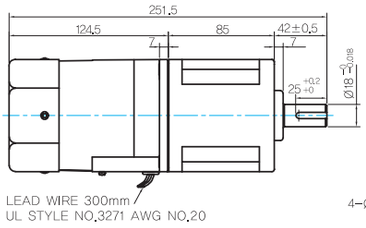
● KEY SPEC

GEARBOX

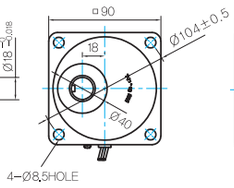


### H TYPE GEARBOX

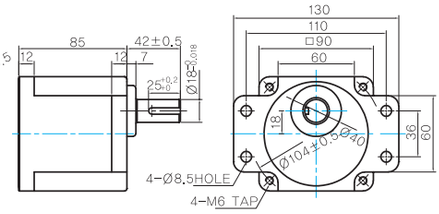
● MOTOR MODEL:
9RDG□-60FH (GENERAL FAN)




● GEARBOX MODEL:
9HBK□BH

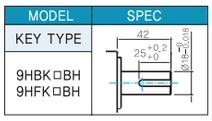



● GEARBOX MODEL:
9HFK□BH



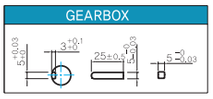

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE | |
| 9HBK□BH<br>9HFK□BH | |



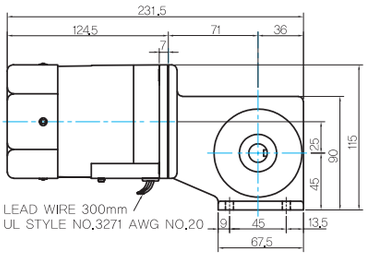
● KEY SPEC

GEARBOX

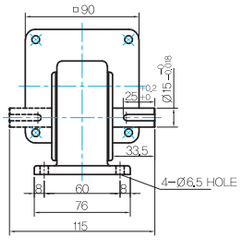


### W TYPE GEARBOX

● MOTOR MODEL:
9RDG□-60FW (GENERAL FAN)

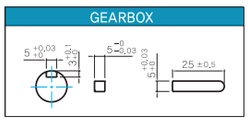



● GEARBOX MODEL:
9WD□BL/BR/BRL



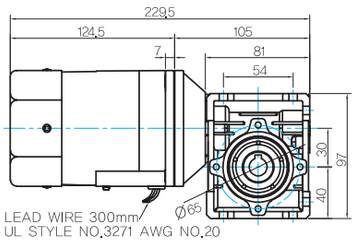

● KEY SPEC

GEARBOX

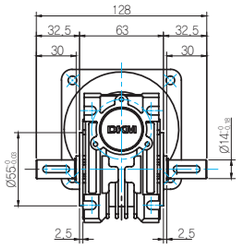


## WH TYPE GEARBOX

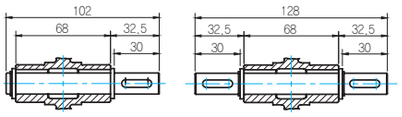
● MOTOR MODEL:
9RDG□-60FWH (GENERAL FAN)




● GEARBOX MODEL:
9WHD□-030

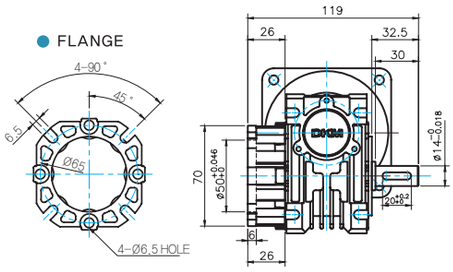


● SHAFT

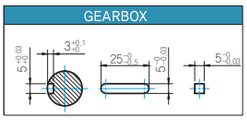



Unidirectional Bi-directional

● FLANGE




● KEY SPEC

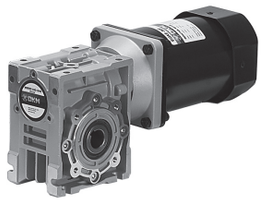



## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 2.65 |
| GEAR BOX | 9PB(F)K2BH – 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH – 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH – 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH – 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH – 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH – 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH – 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH – 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

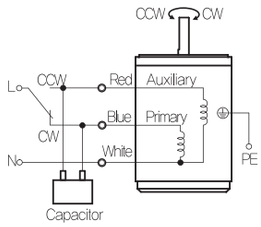
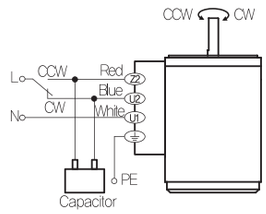
## Motor Images

| 9RDD□-60F | 9RDD□-60F-T | 9RDG□-60FP+9PBK□BH | 9RDG□-60FP+9PFK□BH |
|---|---|---|---|
| | | | |
| **9RDG□-60FH+9HBK□BH** | **9RDG□-60FH+9HFK□BH** | **9RDG□-60FW+9WD□BL** | **9RDG□-60FWH+9WHD□** |
| | | |  |

# B AC Motors

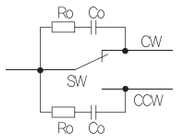
## Reversible Motor 60W(□90mm)

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |









| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 90W Reversible Motor 90W(□ 90mm)

## Motor Specification

| Model<br>9RDG*-90F□(-T): Gear Type Shaft<br>9RDD*-90F(-T): D-Cut Type Shaft<br>9RDK*-90F(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | Speed r/min | Current A | Torque kgfcm | Torque N.m | μF / VAC |
| 9RDG1(A)-90F□ | 9RDG1(A)-90F□-T | 90 | 1ø 110 | 60 | 4 | 30min. | 6.49 | 0.649 | 1600 | 2.00 | 5.48 | 0.548 | 25.0 / 250 |
| 9RDG2(D)-90F□ | 9RDG2(D)-90F□-T | 90 | 1ø 220 | 60 | 4 | 30min. | 6.11 | 0.611 | 1600 | 1.04 | 5.48 | 0.548 | 6.0 / 450 |
| 9RDGE-90F□ | 9RDGE-90F□-T | 90 | 1ø 220 | 50 | 4 | 30min. | 6.07 | 0.607 | 1250 | 0.92 | 7.01 | 0.701 | 6.0 / 450 |
| | | | 1ø 240 | | | | 7.15 | 0.715 | | 1.00 | 7.01 | 0.701 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9RDG*-90FP | 9PBK□BH | kgfcm | 8.9 | 13.3 | 16.0 | 22.2 | 26.6 | 33.3 | 39.9 | 44.4 | 50.0 | 60.0 | 72.0 | 80.0 | 90.4 | 108.5 | 130.2 | 144.6 | 180.8 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 0.87 | 1.30 | 1.57 | 2.17 | 2.61 | 3.26 | 3.91 | 4.35 | 4.90 | 5.88 | 7.06 | 7.84 | 8.86 | 10.63 | 12.76 | 14.17 | 17.72 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9RDG*-90FH | 9HBK□BH | kgfcm | – | 13.3 | 16.0 | 22.2 | 26.6 | 33.3 | 39.9 | 44.4 | 50.0 | 60.0 | 72.0 | 80.0 | 90.4 | 108.5 | 130.2 | 144.6 | 180.8 | 217.0 | 242.4 | 290.9 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.30 | 1.57 | 2.17 | 2.61 | 3.26 | 3.91 | 4.35 | 4.90 | 5.88 | 7.06 | 7.84 | 8.86 | 10.63 | 12.76 | 14.17 | 17.72 | 21.26 | 23.76 | 28.51 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9RDG*-90FW | 9WD□BL/□BR/□BRL | kgfcm | 44.9 | 52.6 | 63.3 | 73.0 | 95.9 | 108.5 | 126.2 | 142.9 | 122.4 |
| | | N.m | 4.40 | 5.15 | 6.20 | 7.15 | 9.40 | 10.63 | 12.37 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9RDG*-90FWH | 9WHD□-030 | kgfcm | 19.1 | 27.6 | 35.5 | 50.0 | 63.1 | 72.3 | 84.2 | 103.4 | 118.3 | 131.5 | 132.7 |
| | | N.m | 1.87 | 2.71 | 3.48 | 4.90 | 6.19 | 7.09 | 8.25 | 10.14 | 11.60 | 12.89 | 13.00 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9RDG*-90FP | 9PBK□BH | kgfcm | 11.4 | 17.0 | 20.4 | 28.4 | 34.1 | 42.6 | 51.1 | 56.8 | 64.0 | 76.8 | 92.1 | 102.4 | 115.7 | 138.9 | 166.6 | 185.1 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.11 | 1.67 | 2.00 | 2.78 | 3.34 | 4.18 | 5.01 | 5.57 | 6.27 | 7.53 | 9.03 | 10.03 | 11.34 | 13.61 | 16.33 | 18.14 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9RDG*-90FH | 9HBK□BH | kgfcm | – | 17.0 | 20.4 | 28.4 | 34.1 | 42.6 | 51.1 | 56.8 | 64.0 | 76.8 | 92.1 | 102.4 | 115.7 | 138.9 | 166.6 | 185.1 | 231.4 | 277.7 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.67 | 2.00 | 2.78 | 3.34 | 4.18 | 5.01 | 5.57 | 6.27 | 7.53 | 9.03 | 10.03 | 11.34 | 13.61 | 16.33 | 18.14 | 22.68 | 27.22 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9RDG*-90FW | 9WD□BL/□BR/□BRL | kgfcm | 57.5 | 67.3 | 81.0 | 93.4 | 122.7 | 138.9 | 153.1 | 142.9 | 122.4 |
| | | N.m | 5.64 | 6.60 | 7.94 | 9.15 | 12.03 | 13.61 | 15.00 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9IDG*-90FWH | 9WHD□-030 | kgfcm | 22.6 | 32.7 | 42.1 | 59.2 | 74.8 | 85.7 | 99.7 | 122.6 | 140.3 | 155.8 | 132.7 |
| | | N.m | 2.21 | 3.21 | 4.12 | 5.80 | 7.33 | 8.40 | 9.77 | 12.01 | 13.75 | 15.27 | 13.00 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

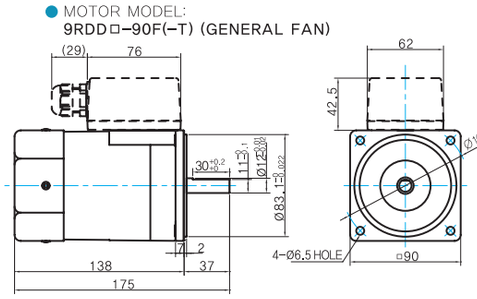
# B AC Motors

## Reversible Motor 90W(□90mm)

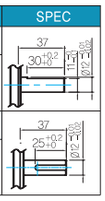
## Dimensions

### MOTOR ONLY

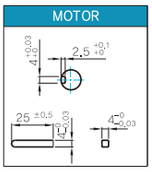
● MOTOR MODEL:
9RDD□-90F(-T) (GENERAL FAN)




● MOTOR OUTPUT SHAFT

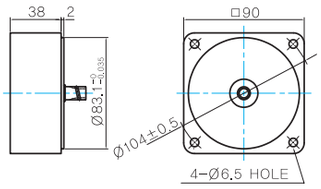
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9RDD□-90F | |
| KEY TYPE | |
| 9RDK□-90F | |

● KEY SPEC




### INTER-DECIMAL GEARBOX

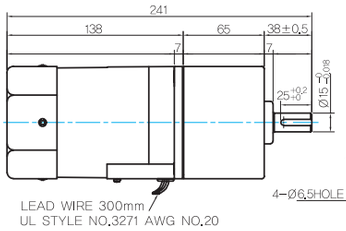
● MODEL: 9XD10□□



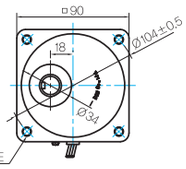

## GEARED MOTOR

### P TYPE GEARBOX

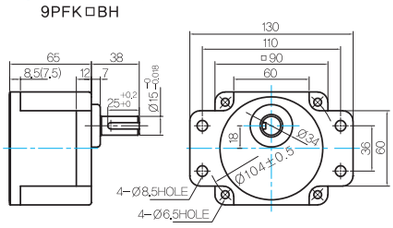
● MOTOR MODEL:
9RDG□-90FP (GENERAL FAN)



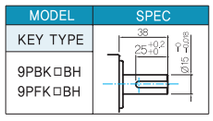

● GEARBOX MODEL:
9PBK□BH



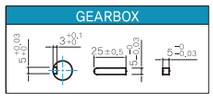

● GEARBOX MODEL:
9PFK□BH




● GEARBOX OUTPUT SHAFT

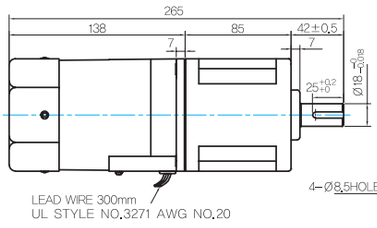
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

● KEY SPEC

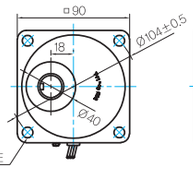



### H TYPE GEARBOX

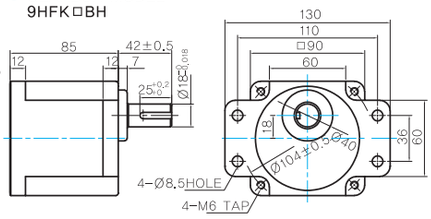
● MOTOR MODEL:
9RDG□-90FH (GENERAL FAN)



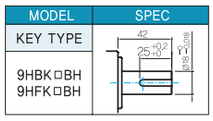

● GEARBOX MODEL:
9HBK□BH



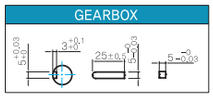

● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

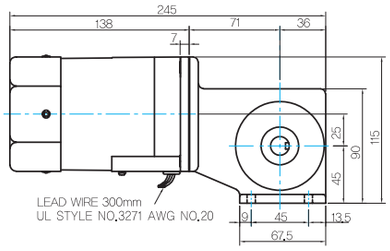
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

● KEY SPEC

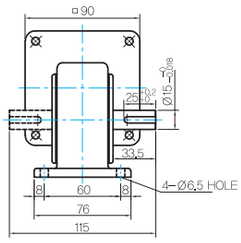



### W TYPE GEARBOX

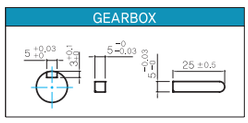
● MOTOR MODEL:
9RDG□-90FW (GENERAL FAN)




● GEARBOX MODEL:
9WD□BL/BR/BRL

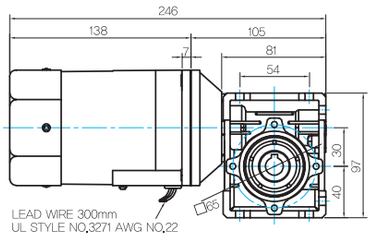



● KEY SPEC

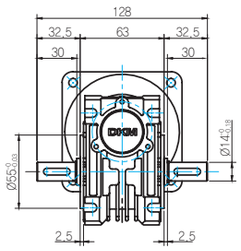


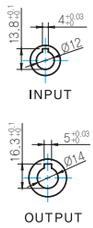
## WH TYPE GEARBOX

● MOTOR MODEL:
9RDG□-90FWH (GENERAL FAN)

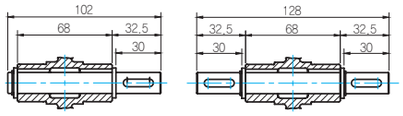



● GEARBOX MODEL:
9WHD□-030



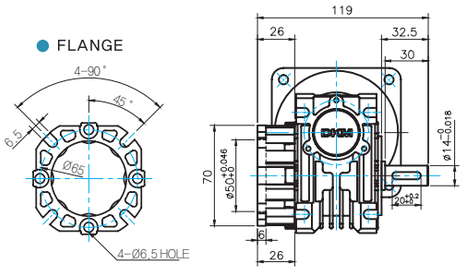




● SHAFT

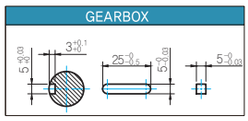



Unidirectional Bi-directional

● FLANGE




● KEY SPEC

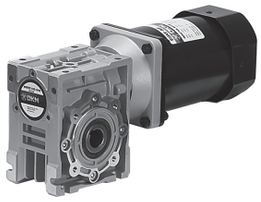



## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9PB(F)K2BH – 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH – 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH – 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH – 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH – 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH – 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH – 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH – 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

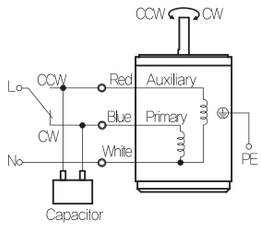
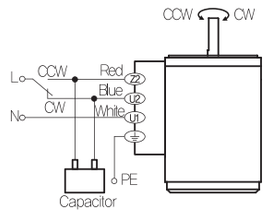
## Motor Images

| 9RDD□-90F | 9RDD□-90F-T | 9RDG□-90FP+9PBK□BH | 9RDG□-90FP+9PFK□BH |
|---|---|---|---|
| | | | |
| **9RDG□-90FH+9HBK□BH** | **9RDG□-90FH+9HFK□BH** | **9RDG□-90FW+9WD□BL** | **9RDG□-90FWH+9WHD□** |
| | | |  |

# B AC Motors

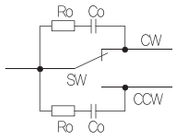
## Reversible Motor 90W(□ 90mm)

### Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |









| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 120W Reversible Motor 120W(□ 90mm)

## Motor Specification

| Model<br>9RDG*-120F□(-T): Gear Type Shaft<br>9RDD*-120F(-T): D-Cut Type Shaft<br>9RDK*-120F(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Speed | Current | Torque | | |
| | | W | V | Hz | | | kgfcm | N.m | r/min | A | kgfcm | N.m | μF / VAC |
| Lead Wire Type | Terminal Box Type | | | | | | | | | | | | |
| 9RDG1(A)-120F□ | 9RDG1(A)-120F□-T | 120 | 1ø 110 | 60 | 4 | 30min. | 7.11 | 0.711 | 1550 | 2.50 | 7.54 | 0.754 | 30.0 / 250 |
| 9RDG2(D)-120F□ | 9RDG2(D)-120F□-T | 120 | 1ø 220 | 60 | 4 | 30min. | 6.42 | 0.642 | 1600 | 1.08 | 7.31 | 0.731 | 6.5 / 450 |
| 9RDGE-120F□ | 9RDGE-120F□-T | 120 | 1ø 220 | 50 | 4 | 30min. | 6.28 | 0.628 | 1250 | 1.10 | 9.35 | 0.935 | 6.5 / 450 |
| | | | 1ø 240 | | | | 7.50 | 0.750 | | 1.21 | 9.35 | 0.935 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9RDG*-120FP | 9PBK□BH | kgfcm | 11.8 | 17.8 | 21.3 | 29.6 | 35.5 | 44.4 | 53.3 | 59.2 | 66.7 | 80.0 | 96.0 | 106.7 | 120.5 | 144.6 | 173.6 | 192.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.16 | 1.74 | 2.09 | 2.90 | 3.48 | 4.35 | 5.22 | 5.80 | 6.53 | 7.84 | 9.41 | 10.45 | 11.81 | 14.17 | 17.01 | 18.90 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9RDG*-120FH | 9HBK□BH | kgfcm | – | 17.8 | 21.3 | 29.6 | 35.5 | 44.4 | 53.3 | 59.2 | 66.7 | 80.0 | 96.0 | 106.7 | 120.5 | 144.6 | 173.6 | 192.9 | 241.1 | 289.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.74 | 2.09 | 2.90 | 3.48 | 4.35 | 5.22 | 5.80 | 6.53 | 7.84 | 9.41 | 10.45 | 11.81 | 14.17 | 17.01 | 18.90 | 23.62 | 28.35 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9RDG*-120FW | 9WD□BL/□ | kgfcm | 59.9 | 70.1 | 84.4 | 97.3 | 127.8 | 144.6 | 153.1 | 142.9 | 122.4 |
| | BR/□BRL | N.m | 5.87 | 6.87 | 8.27 | 9.54 | 12.53 | 14.17 | 15.00 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9RDG*-120FWH | 9WHD | kgfcm | 25.4 | 36.8 | 47.3 | 66.6 | 84.2 | 96.4 | 112.2 | 137.9 | 157.8 | 163.3 | 132.7 |
| | □-030 | N.m | 2.49 | 3.61 | 4.64 | 6.53 | 8.25 | 9.45 | 11.00 | 13.52 | 15.46 | 16.00 | 13.00 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9RDG*-120FP | 9PBK□BH | kgfcm | 15.1 | 22.7 | 27.3 | 37.9 | 45.4 | 56.8 | 68.2 | 75.7 | 85.3 | 102.4 | 122.9 | 136.5 | 154.3 | 185.1 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.48 | 2.23 | 2.67 | 3.71 | 4.45 | 5.57 | 6.68 | 7.42 | 8.36 | 10.03 | 12.04 | 13.38 | 15.12 | 18.14 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9RDG*-120FH | 9HBK□BH | kgfcm | – | 22.7 | 27.3 | 37.9 | 45.4 | 56.8 | 68.2 | 75.7 | 85.3 | 102.4 | 122.9 | 136.5 | 154.3 | 185.1 | 222.2 | 246.9 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 2.23 | 2.67 | 3.71 | 4.45 | 5.57 | 6.68 | 7.42 | 8.36 | 10.03 | 12.04 | 13.38 | 15.12 | 18.14 | 21.77 | 24.19 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9RDG*-120FW | 9WD□BL/□ | kgfcm | 76.7 | 89.8 | 108.0 | 124.5 | 163.6 | 170.0 | 153.1 | 142.9 | 122.4 |
| | BR/□BRL | N.m | 7.51 | 8.80 | 10.58 | 12.21 | 16.04 | 16.66 | 15.00 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9IDG*-120FWH | 9WHD | kgfcm | 30.1 | 43.6 | 56.1 | 79.0 | 99.7 | 114.3 | 133.0 | 163.5 | 173.5 | 163.3 | 132.7 |
| | □-030 | N.m | 2.95 | 4.28 | 5.50 | 7.74 | 9.77 | 11.20 | 13.03 | 16.02 | 17.00 | 16.00 | 13.00 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

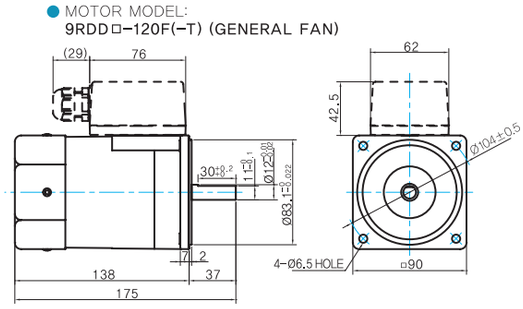
# B AC Motors

## Reversible Motor 120W(□90mm)

## Dimensions

### MOTOR ONLY

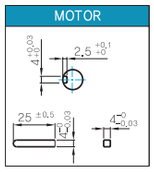
● MOTOR MODEL:
9RDD□-120F(-T) (GENERAL FAN)




● MOTOR OUTPUT SHAFT

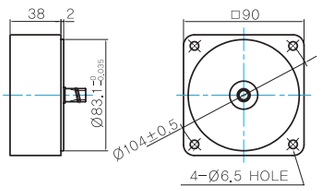
| MODEL | SPEC |
|---|---|
| D-CUT TYPE | |
| 9RDD□-120F | |
| KEY TYPE | |
| 9RDK□-120F | |

● KEY SPEC




### INTER-DECIMAL GEARBOX

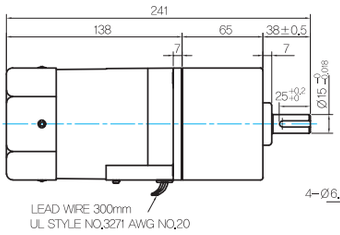
● MODEL: 9XD10□□



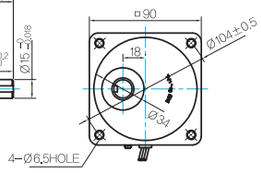

## GEARED MOTOR

### P TYPE GEARBOX

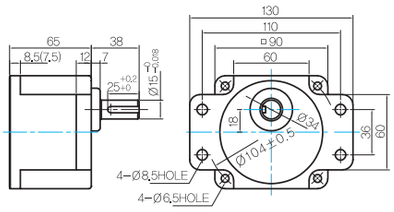
● MOTOR MODEL:
9RDG□-120FP (GENERAL FAN)




● GEARBOX MODEL:
9PBK□BH



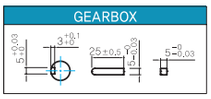

● GEARBOX MODEL:
9PFK□BH




● GEARBOX OUTPUT SHAFT

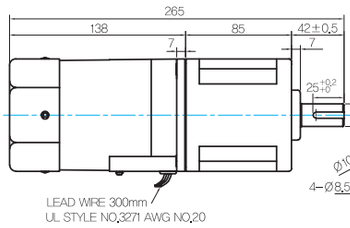
| MODEL | SPEC |
|---|---|
| KEY TYPE | |
| 9PBK□BH<br>9PFK□BH | |

● KEY SPEC

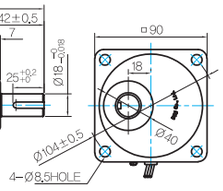



### H TYPE GEARBOX

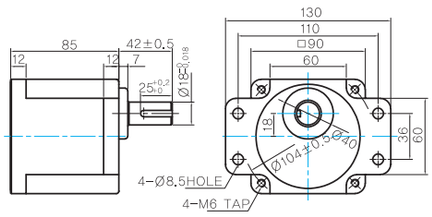
● MOTOR MODEL:
9RDG□-120FH (GENERAL FAN)




● GEARBOX MODEL:
9HBK□BH



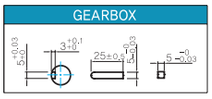

● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

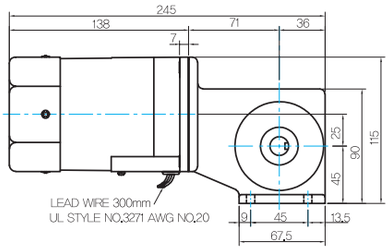
| MODEL | SPEC |
|---|---|
| KEY TYPE | |
| 9HBK□BH<br>9HFK□BH | |

● KEY SPEC

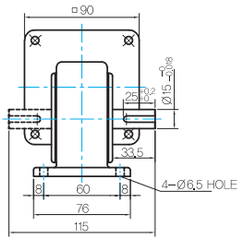



### W TYPE GEARBOX

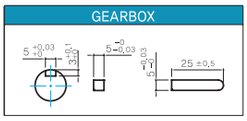
● MOTOR MODEL:
9RDG□-120FW (GENERAL FAN)




● GEARBOX MODEL:
9WD□BL/BR/BRL

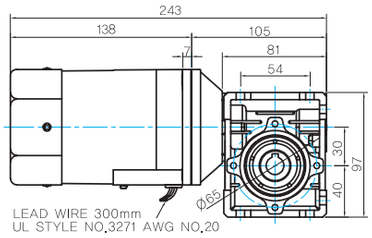



● KEY SPEC

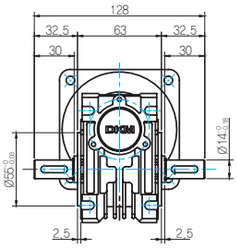


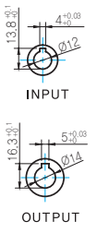
## WH TYPE GEARBOX

● MOTOR MODEL:
9RDG□–120FWH (GENERAL FAN)

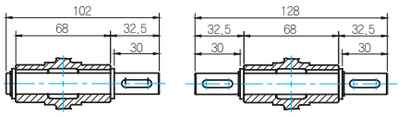



● GEARBOX MODEL:
9WHD□–030



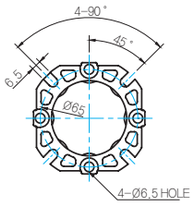



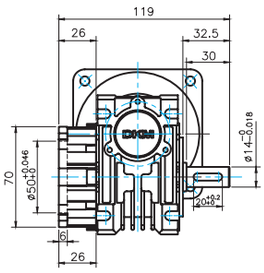

● SHAFT



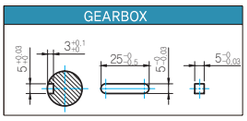

Unidirectional Bi-directional

● FLANGE




● KEY SPEC

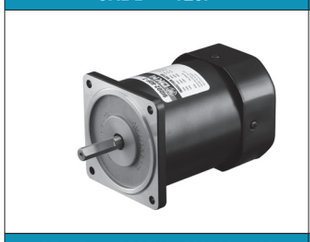
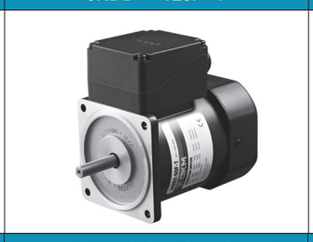



## WEIGHT

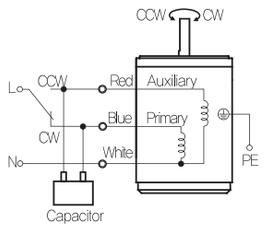
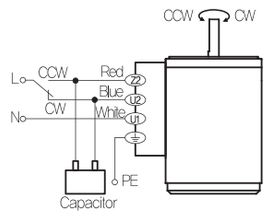
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9PB(F)K2BH – 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH – 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH – 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH – 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH – 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH – 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH – 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH – 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□–030 | 1.2 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

## Motor Images

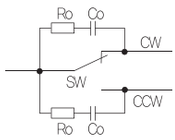
| 9RDD□–120F | 9RDD□–120F–T | 9RDG□–120FP+9PBK□BH | 9RDG□–120FP+9PFK□BH |
|---|---|---|---|
|  |  | | |
| **9RDG□–120FH+9HBK□BH** | **9RDG□–120FH+9HFK□BH** | **9RDG□–120FW+9WD□BL** | **9RDG□–120FWH+9WHD□** |
| | | | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |









| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.

# 180W Reversible Motor 180W(□ 90mm)

## Motor Specification

| Model<br>9RDG*-180F□(-T): Gear Type Shaft<br>9RDD*-180F(-T): D-Cut Type Shaft<br>9RDK*-180F(-T): Key Type Shaft | | Output | Voltage | Frequency | Poles | Duty | Starting Torque | | Rated Load | | | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Speed | Current | Torque | | |
| Lead Wire Type | Terminal Box Type | W | V | Hz | | | kgfcm | N.m | r/min | A | kgfcm | N.m | μF / VAC |
| 9RDG1(A)-180F□ | 9RDG1(A)-180F□-T | 180 | 1ø 110 | 60 | 4 | 30min. | 7.40 | 0.740 | 1600 | 3.00 | 10.96 | 1.096 | 30.0 / 250 |
| 9RDG2(D)-180F□ | 9RDG2(D)-180F□-T | 180 | 1ø 220 | 60 | 4 | 30min. | 7.40 | 0.740 | 1600 | 1.50 | 10.96 | 1.096 | 8.0 / 450 |
| 9RDGE-180F□ | 9RDGE-180F□-T | 180 | 1ø 220 | 50 | 4 | 30min. | 7.00 | 0.700 | 1250 | 1.50 | 14.03 | 1.403 | 8.0 / 450 |
| | | | 1ø 240 | | | | 7.80 | 0.780 | 1300 | 1.60 | 13.49 | 1.349 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9RDG*-180FH | 9HBK□BH | kgfcm | 26.6 | 32.0 | 44.4 | 53.3 | 66.6 | 79.9 | 88.8 | 100.0 | 120.0 | 144.0 | 160.0 | 180.8 | 217.0 | 260.4 | 289.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.61 | 3.13 | 4.35 | 5.22 | 6.52 | 7.83 | 8.70 | 9.80 | 11.76 | 14.11 | 15.68 | 17.72 | 21.26 | 25.51 | 28.35 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9RDG*-180FWH | 9WHD□-030 | kgfcm | 38.1 | 55.2 | 71.0 | 99.9 | 126.2 | 144.6 | 168.3 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 3.74 | 5.41 | 6.96 | 9.79 | 12.37 | 14.17 | 16.49 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 267.4 | 299.8 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 26.20 | 29.38 | 28.91 | 26.46 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9RDG*-180FH | 9HBK□BH | kgfcm | 32.8 | 39.3 | 54.6 | 65.5 | 81.9 | 98.3 | 109.2 | 123.1 | 147.7 | 177.2 | 196.9 | 222.5 | 267.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 3.21 | 3.85 | 5.35 | 6.42 | 8.03 | 9.63 | 10.71 | 12.06 | 14.47 | 17.37 | 19.30 | 21.81 | 26.17 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 | 15 |
| 9RDG*-180FWH | 9WHD□-030 | kgfcm | 46.9 | 68.0 | 87.4 | 123.0 | 155.4 | 178.0 | 204.1 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 4.60 | 6.66 | 8.56 | 12.05 | 15.23 | 17.45 | 20.00 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 329.1 | 330.0 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 32.25 | 32.34 | 28.91 | 26.46 |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

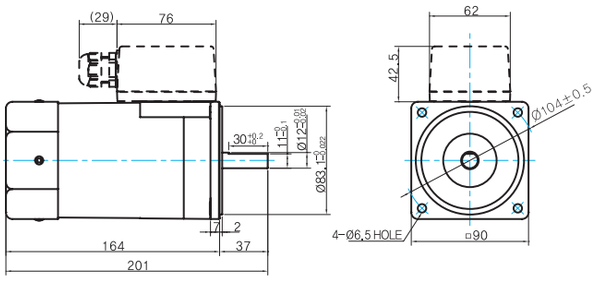
# B AC Motors

## Reversible Motor 180W(□ 90mm)

## Dimensions

### MOTOR ONLY

● MOTOR MODEL:
9RDD□-180F(-T) (GENERAL FAN)




● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE | |
| 9RDD□-180F | |
| KEY TYPE | |
| 9RDK□-180F | |

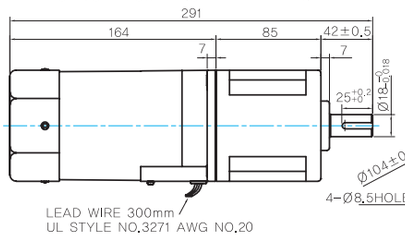
● KEY SPEC

| MOTOR |
|---|
| |

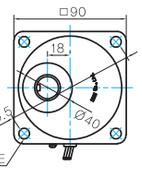
### GEARED MOTOR

### H TYPE GEARBOX

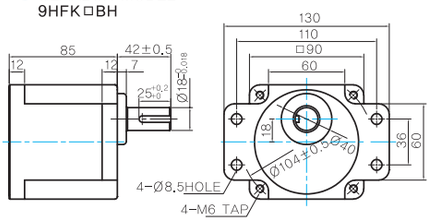
● MOTOR MODEL:
9RDG□-180FH (GENERAL FAN)




● GEARBOX MODEL:
9HBK□BH




● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

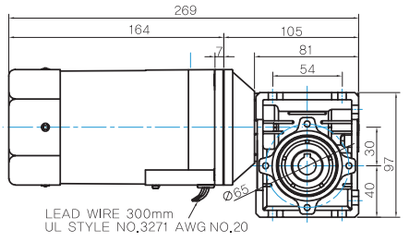
| MODEL | SPEC |
|---|---|
| KEY TYPE | |
| 9HBK□BH<br>9HFK□BH | |

● KEY SPEC

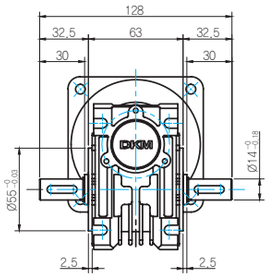
| GEARBOX |
|---|
| |

### WH TYPE GEARBOX

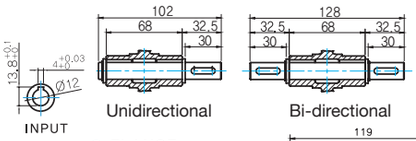
● MOTOR MODEL:
9RDG□-180FWH (GENERAL FAN)



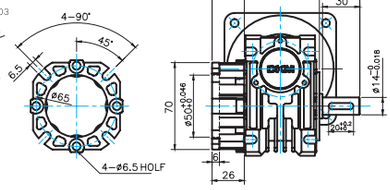

● GEARBOX MODEL:
9WHD□-030




● SHAFT




● FLANGE

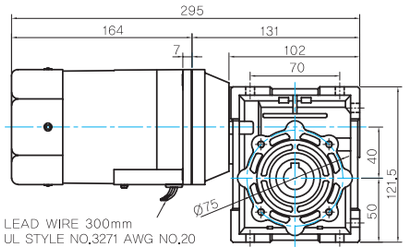



● KEY SPEC

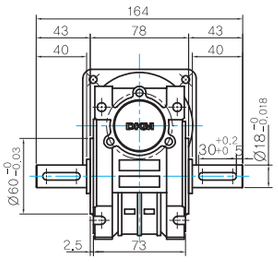
| GEARBOX |
|---|
| |

* The output flange and shaft are sold separately

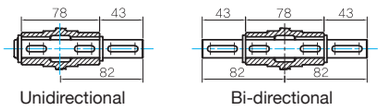
● MOTOR MODEL:
9RDG□-180FWH (GENERAL FAN)




● GEARBOX MODEL:
9WHD□-040

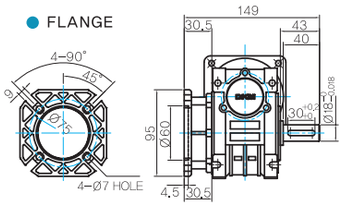



● SHAFT



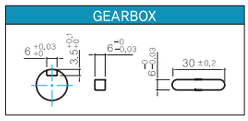

Unidirectional Bi-directional

● FLANGE




● KEY SPEC

GEARBOX




## WEIGHT

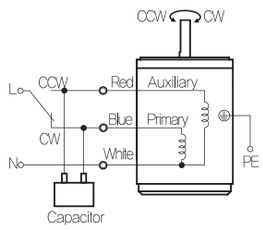
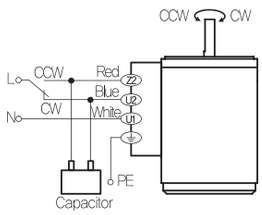
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9HB(F)K3BH ~ 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH ~ 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH ~ 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH ~ 9HB(F)K200BH | 1.78 |
| | 9WHD□-030 | 1.2 |
| | 9WHD□-040 | 2.1 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

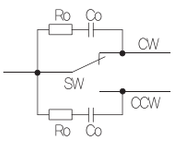
## Motor Images

| 9RDD□-180F | 9RDD□-180F-T | 9RDG□-180FP+9PBK□BH | 9RDG□-180FP+9PFK□BH |
|---|---|---|---|
| | | | |
| **9RDG□-180FH+9HBK□BH** | **9RDG□-180FH+9HFK□BH** | **9RDG□-180FW+9WD□BL** | **9RDG□-180FWH+9WHD□** |
| | | | |

## Connection Diagrams

| Lead Wire Type | Terminal Box Type |
|---|---|
|  |  |

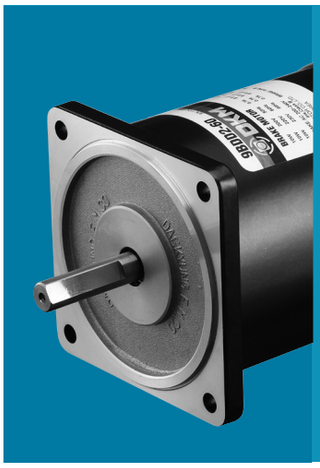




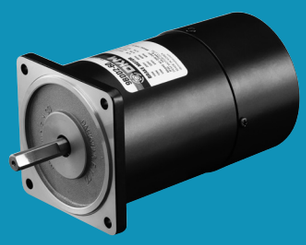

| Code | Contact Capacity |
|---|---|
| SW | AC125V 5A min. or<br>AC250V 5A min. (Inductive load) |
| Ro, Co | Ro=5~200Ω<br>Co=0.1~0.2μF, 200WV (400WV) |

* Connect a CR circuit for surge suppression to protect the contact.

1) The direction of motor rotation is as viewed from the shaft end of the motor. 2) CW represents the clockwise direction, while CCW represents the counterclockwise direction. 3) During operation it is available to change the rotating direction by turning the switch to CW or CCW.



# Brake Motor





## Index


| | |
|---|---|
| **Outline of Brake Motor** | B-113 |
| **Brake Motor 6W (□60mm)** | B-115 |
| **Brake Motor 6W (□70mm)** | B-117 |
| **Brake Motor 10W (□70mm)** | B-119 |
| **Brake Motor 15W (□70mm)** | B-121 |
| **Brake Motor 15W (□80mm)** | B-123 |
| **Brake Motor 25W (□80mm)** | B-126 |
| **Brake Motor 40W (□90mm)** | B-129 |
| **Brake Motor 60W (□90mm)** | B-132 |
| **Brake Motor 90W (□90mm)** | B-136 |
| **Brake Motor 120W (□90mm)** | B-140 |
| **Brake Motor 150W (□90mm)** | B-144 |
| **Brake Motor 180W (□90mm)** | B-147 |
| **Brake Motor 200W (□90mm)** | B-150 |
| **Brake Motor 250W (□104mm)** | B-153 |
| **Brake Motor 300W (□104mm)** | B-156 |
| **Brake Motor 400W (□104mm)** | B-159 |

## Outline of Brake Motor

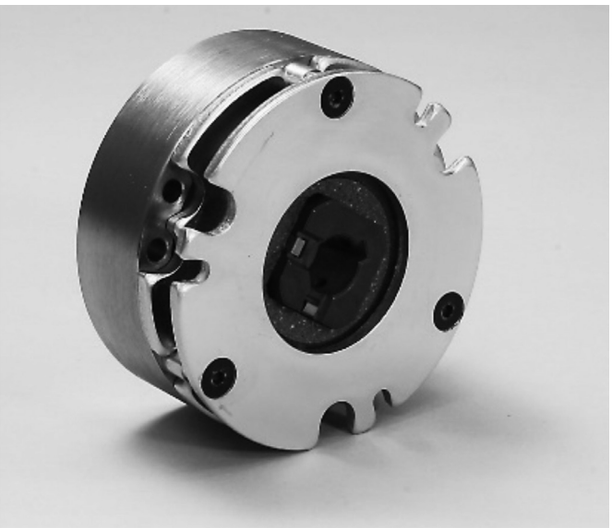
### Power Off Activated Type Electromagnetic Brake

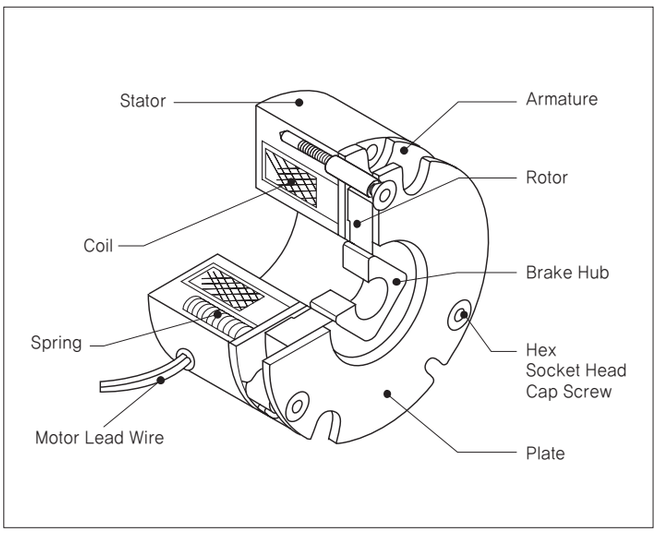
AC electromagnetic brake is mounted on the brake motors. When the power source is turned off, the brake is activated and the motor stops instantaneously and holds the load. Brake motors are commonly used in motion control applications for stopping or holding a load (or both), especially on vertical axes or for emergency stop functionality.

### Operation

- There are 2~3 times of overrun rotation at the time the power is turned off as an individual motor.(Induction motor: 30~40 times overrun, Reversible motor: 5~6 times overrun)
- The frequent and instantaneous directional changes are possible. By a simple control, it is possible to make 6 stops per a minute with more than 3 seconds of stoppage. Roughly the operating cycle is 50 cylces per a minute or less. (Note: This value is based merely on brake response. And this value is maximum, so it may not be possible to repeat braking operation at this frequency. Please make the treatment so that the surface of the motor case remains below 90℃. )
- The motor and the brake use the same power source. (For example, if motor voltage is 110V, that of brake is 110V.)

### Structure






### General Specifications

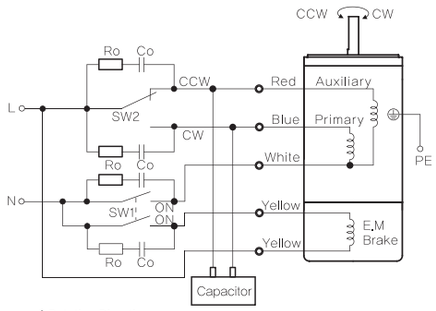
| Item | Specification |
|---|---|
| Insulation Resistance | 100MΩ or more when DC500V MEGA is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity. |
| Dielectric Strength | Sufficient to withstand 1.5KV at 50Hz and 60Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity. |
| Temperature Rise | Temperature rise of windings are 80℃ or less measured by the resistance change method after rated motor operation with connecting a gearbox or equivalent heat radiation plate. |
| Insulation Class | Class B [130℃] |
| Overheat Protection | Operating temperature (Built-in thermal protector type motor): Open 120℃±5℃, Close 90℃±5℃ |
| Ambient Temperature | -10℃~+40℃ (Three phase 220VAC: -10℃~+50℃) |
| Ambient Humidity | 85% maximum |

## Brake Specifications

| Brake Motor | | | Brake Model | commutator | Coil (at 20℃) | | | | Static Friction Torque [N.m] | Shaft Dia. |
|---|---|---|---|---|---|---|---|---|---|---|
| Frame | Output | Voltage | | | Voltage[V] | Output[W] | Current[A] | Resistance[Ω] | | |
| 60mm | 6W | 110 | BXW-01-10M | BEM-2T | 45 | 2.4 | 0.053 | 845 | 0.05 | Φ6 |
| | | 220 | BXW-01-10M | | 90 | | 0.027 | 3382 | 0.05 | |
| 70mm | 6W | 110 | BXW-02-10M | BEM-2T | 45 | 2.8 | 0.062 | 724 | 0.10 | Φ7 |
| | 10W | 220 | | | 90 | | 0.031 | 2898 | 0.10 | |
| 80mm | 15W 25W | 110 | BXW-03-10M | BEM-2T BEM-4T | 45 | 4.3 | 0.095 | 471 | 0.20 | Φ8 |
| | | 220 | | | 90 | | 0.048 | 1886 | 0.20 | |
| | | 380 | | | 180 | | 0.024 | 7543 | 0.20 | |
| 90mm | 40W 60W | 110 | BXW-04-10M-05 | BEM-2T BEM-4T | 45 | 6.8 | 0.151 | 297 | 0.50 | |
| | | 220 | | | 90 | | 0.076 | 1190 | 0.50 | |
| | | 380 | | | 180 | | 0.038 | 4762 | 0.50 | |
| | 90W ~ 200W | 110 | BXW-04-10M-10 | BEM-2T BEM-4T | 45 | 10 | 0.222 | 202 | 1.0 | Φ10 |
| | | 220 | | | 90 | | 0.111 | 810 | 1.0 | |
| | | 380 | | | 180 | | 0.056 | 3241 | 1.0 | |
| 104mm | 250W ~ 400W | 220 | BXW-05-10L | BEM-2T BEM-4T | 90 180 | 13 | 0.144 | 623 | 2.0 | Φ12 |
| | | 380 | | | | | 0.072 | 2492 | 2.0 | |
| | | 440 | | | | | 0.072 | 2492 | 2.0 | |
| DSY | 100W ~ 200W | 220 | BXW-05-10L | BEM-2T BEM-4T | 90 | 13 | 0.144 | 623 | 2.0 | Φ12 |
| | | 380 | | | 180 | | 0.072 | 2492 | 2.0 | |
| | | 440 | | | 180 | | 0.072 | 2492 | 2.0 | |
| | 400W | 220 | BXL-08-10J | BEM-4T | 99 | 19 | 0.192 | 516 | 4.0 | Φ14 |
| | | 380 | | | 198 | | 0.096 | 2063 | 4.0 | |
| | | 440 | | | 198 | | 0.096 | 2063 | 4.0 | |

## Connection Diagrams

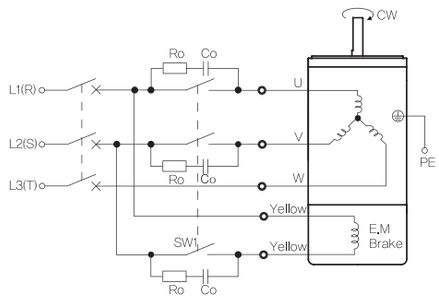
### Single Phase




*** Rotation Direction:**
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

### Three Phase




*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

1) SW1 operates both motor and electromagnetic brake action.
2) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON.
3) When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
4) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
5) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# 6W Brake Motor 6W(□60mm)

## Motor Specificat

| Model<br>6BDG*-6G: Gear Type Shaft<br>6BDD*-6: D-Cut Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6BDG1(A)-6G | 6 | 1ø 110 | 60 | 4 | Cont. | 0.60 | 0.060 | 1550 | 0.25 | 0.38 | 0.038 | 3.0 / 250 |
| 6BDG2(D)-6G | 6 | 1ø 220 | 60 | 4 | Cont. | 0.62 | 0.062 | 1550 | 0.15 | 0.38 | 0.038 | 1.0 / 450 |
| 6BDGE-6G | 6 | 1ø 220 | 50 | 4 | Cont. | 0.50 | 0.050 | 1200 | 0.10 | 0.49 | 0.049 | 0.7 / 450 |
| | | 1ø 240 | | | | 0.55 | 0.055 | | 0.11 | 0.49 | 0.049 | |
| 6BDG3(G)-6G | 6 | 3ø 220 | 50 | 4 | Cont. | 1.20 | 0.120 | 1250 | 0.13 | 0.47 | 0.047 | -- |
| | | | 60 | | | 0.90 | 0.090 | 1550 | 0.11 | 0.38 | 0.038 | |
| | | 3ø 230 | 50 | 4 | Cont. | 1.30 | 0.130 | 1250 | 0.14 | 0.47 | 0.047 | |
| | | | 60 | | | 1.00 | 0.100 | 1550 | 0.12 | 0.38 | 0.038 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
3) Impedance Protected Type

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 |
| 6BDG*-6G | 6GBD□MH | kgfcm | 0.9 | 1.1 | 1.5 | 1.8 | 2.3 | 2.7 | 3.1 | 3.8 | 4.6 | 5.5 | 5.5 | 6.9 | 8.3 | 9.9 | 11.0 | 12.4 | 14.9 | 18.7 | 22.4 |
| | | N.m | 0.09 | 0.11 | 0.15 | 0.18 | 0.22 | 0.27 | 0.30 | 0.37 | 0.45 | 0.54 | 0.54 | 0.67 | 0.81 | 0.97 | 1.08 | 1.22 | 1.46 | 1.83 | 2.19 |

| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 18 | 15 | 12 | 10 | 9 | 7.2 |
| 6BDG*-6G | 6GBD□MH | kgfcm | 24.9 | 29.9 | 30.0 | 30.0 | 30.0 | 30.0 |
| | | N.m | 2.44 | 2.93 | 2.94 | 2.94 | 2.94 | 2.94 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 |
| 6BDG*-6G | 6GBD□MH | kgfcm | 1.2 | 1.4 | 2.0 | 2.4 | 3.0 | 3.6 | 3.9 | 4.9 | 5.9 | 7.1 | 7.1 | 8.9 | 10.7 | 12.8 | 14.2 | 16.1 | 19.3 | 24.1 | 28.9 |
| | | N.m | 0.12 | 0.14 | 0.19 | 0.23 | 0.29 | 0.35 | 0.39 | 0.48 | 0.58 | 0.70 | 0.70 | 0.87 | 1.05 | 1.25 | 1.39 | 1.57 | 1.89 | 2.36 | 2.83 |

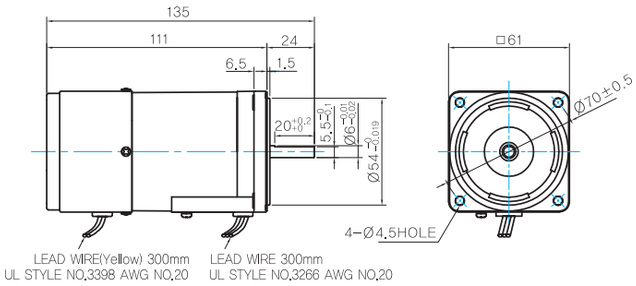
| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 15 | 12 | 10 | 8 | 7.5 | 6 |
| 6BDG*-6G | 6GBD□MH | kgfcm | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | | N.m | 2.94 | 2.94 | 2.94 | 2.94 | 2.94 | 2.94 |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

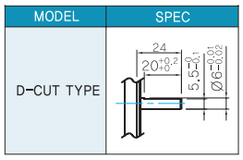
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 6BDD□-6 (NO FAN)




● MOTOR OUTPUT SHAFT

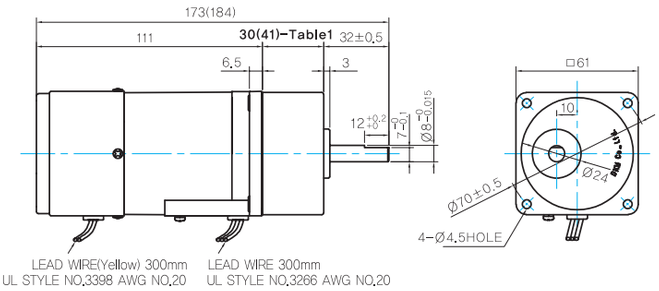
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## GEARED MOTOR

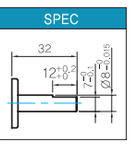
### G TYPE GEARBOX

● MOTOR MODEL: 6BDG□-6G (NO FAN)

● GEARBOX MODEL: 6GBD□MH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

### WEIGHT

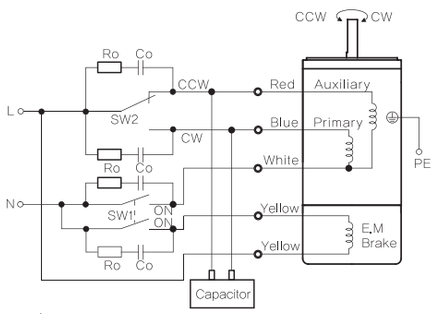
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 0.7 |
| GEAR BOX | 6GBD3MH ~ 6GBD18MH | 0.3 |
| | 6GBD20MH ~ 6GBD40MH | 0.32 |
| | 6GBD50MH ~ 6GBD250MH | 0.34 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 6GBD3MH – 6GBD18MH |
| 42 | 6GBD25MH – 6GBD180MH |

# Connection Diagrams

## Single Phase




* Rotation Direction:
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# Motor Images

| 6BDD□-6 | 6BDG□-6G+6GBD□MH |
|---|---|
| | |

# 6W Brake Motor 6W(□70mm)

## Motor Specification

| Model<br>7BDG*-6G: Gear Type Shaft<br>7BDD*-6: D-Cut Type Shaft<br>Lead Wire Type | Output<br>W | Voltage<br>V | Frequency<br>Hz | Poles | Duty | Starting Torque<br>kgfcm | Starting Torque<br>N.m | Rated Load<br>Speed<br>r/min | Rated Load<br>Current<br>A | Rated Load<br>Torque<br>kgfcm | Rated Load<br>Torque<br>N.m | Capacitor<br>μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7BDG1(A)-6G | 6 | 1ø 110 | 60 | 4 | 30min. | 0.56 | 0.056 | 1600 | 0.27 | 0.37 | 0.037 | 3.0 / 250 |
| 7BDG2(D)-6G | 6 | 1ø 220 | 60 | 4 | 30min. | 0.75 | 0.075 | 1600 | 0.17 | 0.37 | 0.037 | 1.0 / 450 |
| 7BDGE-6G | 6 | 1ø 220 | 50 | 4 | 30min. | 0.61 | 0.061 | 1250 | 0.15 | 0.47 | 0.047 | 0.8 / 450 |
| | | 1ø 240 | | | | 0.72 | 0.072 | | 0.17 | 0.47 | 0.047 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 |
| 7BDG*-6G | 7GBK□BMH | kgfcm | 0.9 | 1.1 | 1.5 | 1.8 | 2.2 | 2.7 | 3.0 | 3.7 | 4.4 | 5.3 | 5.3 | 6.7 | 8.0 | 9.6 | 10.7 | 12.1 | 14.5 | 18.1 | 22.4 |
| | | N.m | 0.09 | 0.10 | 0.14 | 0.17 | 0.22 | 0.26 | 0.29 | 0.36 | 0.43 | 0.52 | 0.52 | 0.65 | 0.78 | 0.94 | 1.05 | 1.18 | 1.42 | 1.77 | 2.19 |

| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|
| | | r/min | 18 | 15 | 12 | 10 | 9 |
| 7BDG*-6G | 7GBK□BMH | kgfcm | 24.1 | 28.9 | 36.2 | 43.4 | 48.2 |
| | | N.m | 2.36 | 2.83 | 3.54 | 4.25 | 4.72 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 16 |
| 7BDG*-6G | 7GBK□BMH | kgfcm | 1.1 | 1.3 | 1.8 | 2.2 | 2.7 | 3.3 | 3.6 | 4.6 | 5.5 | 6.6 | 6.6 | 8.2 | 9.8 | 11.8 | 13.1 | 14.8 | 17.8 | 22.3 | 26.7 |
| | | N.m | 0.107 | 0.13 | 0.18 | 0.21 | 0.27 | 0.32 | 0.36 | 0.45 | 0.54 | 0.64 | 0.64 | 0.80 | 0.96 | 1.16 | 1.29 | 1.45 | 1.74 | 2.18 | 2.62 |

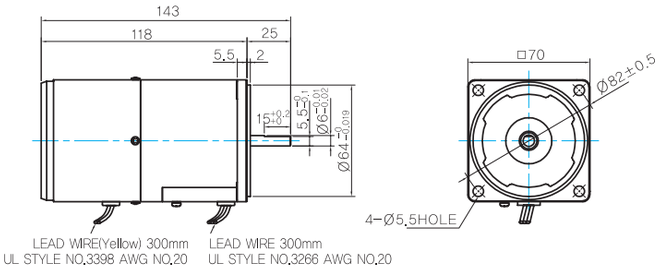
| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|
| | | r/min | 15 | 12.5 | 10 | 8 | 7.5 |
| 7BDG*-6G | 7GBK□BMH | kgfcm | 29.7 | 35.6 | 44.5 | 50.0 | 50.0 |
| | | N.m | 2.91 | 3.49 | 4.36 | 4.90 | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

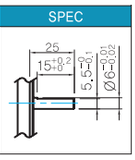
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7BDD□-6 (NO FAN)




● MOTOR OUTPUT SHAFT

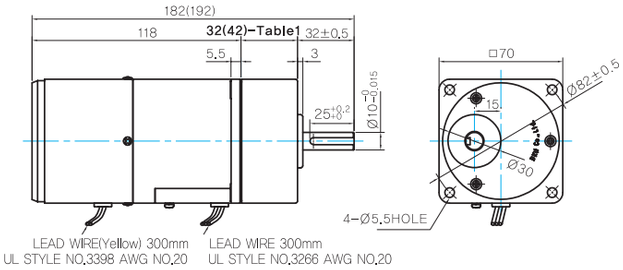
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## GEARED MOTOR

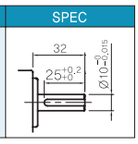
### G TYPE GEARBOX

● MOTOR MODEL: 7BDG□-6G (NO FAN)

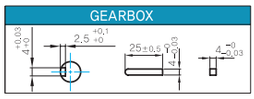
● GEARBOX MODEL: 7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

### WEIGHT

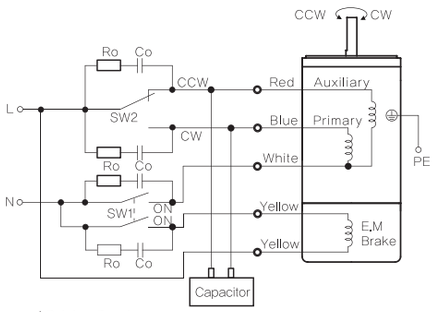
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.2 |
| GEAR BOX | 7GBK3BMH – 7GBK18BMH | 0.38 |
| | 7GBK20BMH – 7GBK40BMH | 0.48 |
| | 7GBK50BMH – 7GBK200BMH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH – 7GBK18BMH |
| 42 | 7GBK20BMH – 7GBK200BMH |

# Connection Diagrams

## Single Phase




* Rotation Direction:
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# Motor Images

| 7BDD□-6 | 7BDG□-6G+7GBK□BMH |
|---|---|
| | |

# 10W Brake Motor 10W(□70mm)

## Motor Specification

| Model<br>7BDG*-10G: Gear Type Shaft<br>7BDD*-10: D-Cut Type Shaft<br>Lead Wire Type | Output<br>W | Voltage<br>V | Frequency<br>Hz | Poles | Duty | Starting Torque<br>kgfcm | Starting Torque<br>N.m | Rated Load<br>Speed<br>r/min | Rated Load<br>Current<br>A | Rated Load<br>Torque<br>kgfcm | Rated Load<br>Torque<br>N.m | Capacitor<br>μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7BDG1(A)-10G | 10 | 1ø 110 | 60 | 4 | 30min. | 0.70 | 0.070 | 1550 | 0.31 | 0.63 | 0.063 | 3.5 / 250 |
| 7BDG2(D)-10G | 10 | 1ø 220 | 60 | 4 | 30min. | 0.92 | 0.092 | 1550 | 0.20 | 0.63 | 0.063 | 1.2 / 450 |
| 7BDGE-10G | 10 | 1ø 220 | 50 | 4 | 30min. | 0.78 | 0.078 | 1200 | 0.17 | 0.81 | 0.081 | 1.0 / 450 |
| | | 1ø 240 | | | | 0.94 | 0.094 | | 0.18 | 0.81 | 0.081 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 |
| 7BDG*-10G | 7GBK□BMH | kgfcm | 1.5 | 1.8 | 2.5 | 3.1 | 3.8 | 4.6 | 5.1 | 6.4 | 7.6 | 9.2 | 9.2 | 11.5 | 13.8 | 16.5 | 18.3 | 20.7 | 24.9 | 31.1 | 37.3 |
| | | N.m | 0.15 | 0.18 | 0.25 | 0.30 | 0.37 | 0.45 | 0.50 | 0.62 | 0.75 | 0.90 | 0.90 | 1.12 | 1.35 | 1.62 | 1.80 | 2.03 | 2.44 | 3.05 | 3.66 |

| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|
| | | r/min | 18 | 15 | 12 | 10 | 9 |
| 7BDG*-10G | 7GBK□BMH | kgfcm | 41.5 | 49.8 | 50.0 | 50.0 | 50.0 |
| | | N.m | 4.06 | 4.88 | 4.90 | 4.90 | 4.90 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 |
| 7BDG*-10G | 7GBK□BMH | kgfcm | 2.0 | 2.4 | 3.3 | 3.9 | 4.9 | 5.9 | 6.6 | 8.2 | 9.9 | 11.8 | 11.9 | 14.8 | 17.8 | 21.3 | 23.7 | 26.8 | 32.1 | 40.2 | 48.2 |
| | | N.m | 0.19 | 0.23 | 0.32 | 0.39 | 0.48 | 0.58 | 0.64 | 0.81 | 0.97 | 1.16 | 1.16 | 1.45 | 1.74 | 2.09 | 2.32 | 2.62 | 3.15 | 3.94 | 4.72 |

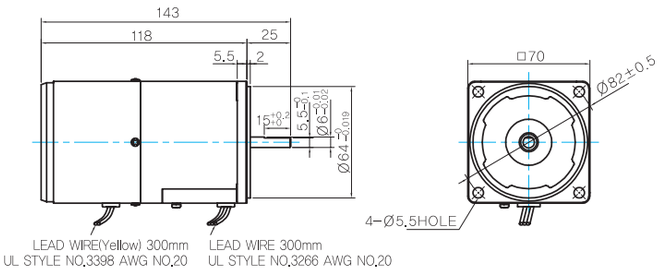
| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|
| | | r/min | 15 | 12.5 | 10 | 8 | 7.5 |
| 7BDG*-10G | 7GBK□BMH | kgfcm | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 | 4.90 | 4.90 | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

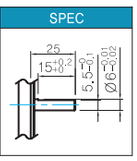
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7BDD□-10 (NO FAN)




● MOTOR OUTPUT SHAFT

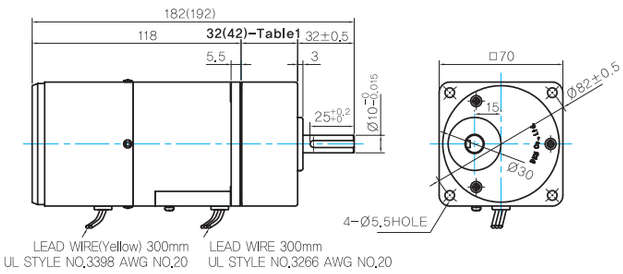
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## GEARED MOTOR

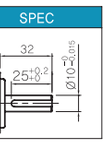
## G TYPE GEARBOX

● MOTOR MODEL:
7BDG□-10G (NO FAN)

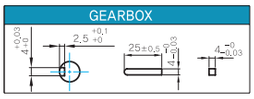
● GEARBOX MODEL:
7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

## WEIGHT

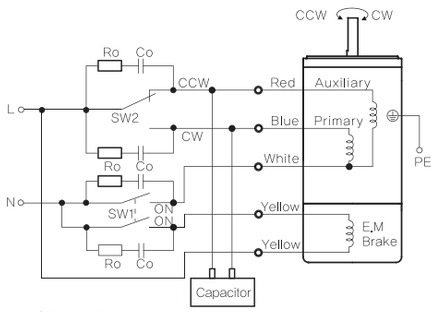
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.2 |
| GEAR BOX | 7GBK3BMH - 7GBK18BMH | 0.38 |
| | 7GBK20BMH - 7GBK40BMH | 0.48 |
| | 7GBK50BMH - 7GBK200BMH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH - 7GBK18BMH |
| 42 | 7GBK20BMH - 7GBK200BMH |

# Connection Diagrams

## Single Phase




* Rotation Direction:
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# Motor Images

| 7BDD□-10 | 7BDG□-10G+7GBK□BMH |
|---|---|
| | |

# 15W Brake Motor 15W(□70mm)

## Motor Specification

| Model<br>7BDG*-15G: Gear Type Shaft<br>7BDD*-15: D-Cut Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7BDG1(A)-15G | 15 | 1ø 110 | 60 | 4 | 30min. | 1.35 | 0.135 | 1550 | 0.49 | 0.94 | 0.094 | 6.0 / 250 |
| 7BDG2(D)-15G | 15 | 1ø 220 | 60 | 4 | 30min. | 1.23 | 0.123 | 1600 | 0.22 | 0.91 | 0.091 | 1.5 / 450 |
| 7BDGE-15G | 15 | 1ø 220 | 50 | 4 | 30min. | 1.07 | 0.107 | 1200 | 0.19 | 1.22 | 0.122 | 1.2 / 450 |
| | | 1ø 240 | | | | 1.28 | 0.128 | | 0.21 | 1.22 | 0.122 | |
| 7BDG3(G)-15G | 15 | 3ø 220 | 50 | 4 | Cont. | 3.20 | 0.320 | 1300 | 0.27 | 1.13 | 0.113 | -- |
| | | | 60 | | | 2.30 | 0.230 | 1550 | 0.22 | 0.94 | 0.094 | |
| | | 3ø 230 | 50 | 4 | Cont. | 3.60 | 0.360 | 1300 | 0.28 | 1.13 | 0.113 | |
| | | | 60 | | | 2.50 | 0.250 | 1550 | 0.24 | 0.94 | 0.094 | |

1) Enter the phase & voltage code in the place * within the motor model name.
2) The phase & voltage code A, D, E, G contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 |
| 7BDG*-15G | 7GBK□BMH | kgfcm | 2.2 | 2.7 | 3.7 | 4.4 | 5.5 | 6.7 | 7.4 | 9.2 | 11.1 | 13.3 | 13.3 | 16.7 | 20.0 | 24.0 | 26.7 | 30.1 | 36.2 | 45.2 | 50.0 |
| | | N.m | 0.22 | 0.26 | 0.36 | 0.43 | 0.54 | 0.65 | 0.72 | 0.91 | 1.09 | 1.30 | 1.31 | 1.63 | 1.96 | 2.35 | 2.61 | 2.95 | 3.54 | 4.43 | 4.90 |

| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|
| | | r/min | 18 | 15 | 12 | 10 | 9 |
| 7BDG*-15G | 7GBK□BMH | kgfcm | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 | 4.90 | 4.90 | 4.90 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 38 | 30 | 25 | 20 | 17 |
| 7BDG*-15G | 7GBK□BMH | kgfcm | 3.0 | 3.6 | 4.9 | 5.9 | 7.4 | 8.9 | 9.9 | 12.3 | 14.8 | 17.8 | 17.8 | 22.2 | 26.7 | 32.0 | 35.6 | 40.2 | 48.2 | 50.0 | 50.0 |
| | | N.m | 0.29 | 0.35 | 0.48 | 0.58 | 0.72 | 0.87 | 0.97 | 1.21 | 1.45 | 1.74 | 1.74 | 2.18 | 2.61 | 3.14 | 3.48 | 3.94 | 4.72 | 4.90 | 4.90 |

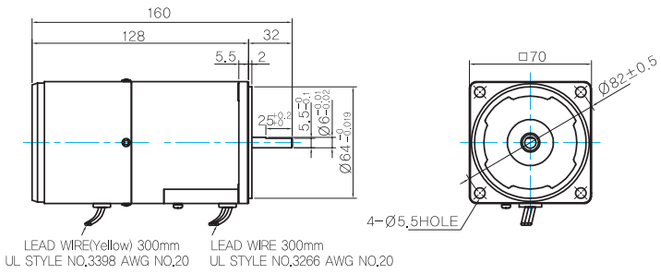
| Motor Model | Gearbox Model | Gear Ratio | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|
| | | r/min | 15 | 12.5 | 10 | 8 | 7.5 |
| 7BDG*-15G | 7GBK□BMH | kgfcm | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | | N.m | 4.90 | 4.90 | 4.90 | 4.90 | 4.90 |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

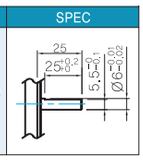
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 7BDD□-15 (NO FAN)



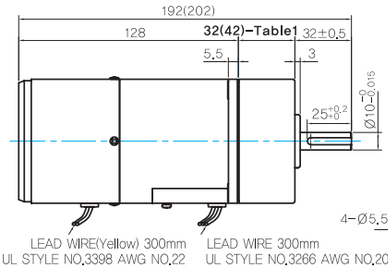

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

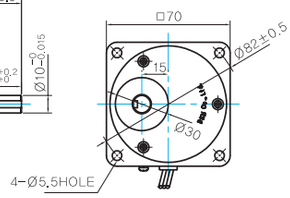
## GEARED MOTOR

### G TYPE GEARBOX

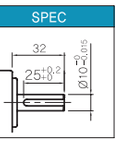
● MOTOR MODEL:
7BDG□-15G (NO FAN)



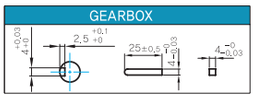

● GEARBOX MODEL:
7GBK□BMH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

### WEIGHT

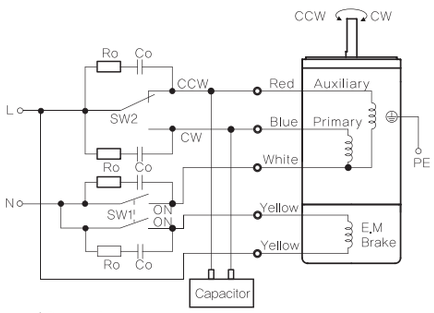
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 1.5 |
| GEAR BOX | 7GBK3BMH - 7GBK18BMH | 0.38 |
| | 7GBK20BMH - 7GBK40BMH | 0.48 |
| | 7GBK50BMH - 7GBK200BMH | 0.53 |

● 32(42)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 7GBK3BMH - 7GBK18BMH |
| 42 | 7GBK20BMH - 7GBK200BMH |

# Connection Diagrams

## Single Phase




* Rotation Direction:
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# Motor Images

| 7BDD□-15 | 7BDG□-15G+7GBK□BMH |
|---|---|
| | |

# 15W Brake Motor 15W(□80mm)

## Motor Specification

| Model<br>8BDG*-15□ : Gear Type Shaft<br>8BDD*-15: D-Cut Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8BDG1(A)-15□ | 15 | 1ø 110 | 60 | 4 | 30min. | 1.58 | 0.158 | 1600 | 0.55 | 0.91 | 0.091 | 6.0 / 250 |
| 8BDG2(D)-15□ | 15 | 1ø 220 | 60 | 4 | 30min. | 1.51 | 0.151 | 1600 | 0.24 | 0.91 | 0.091 | 1.5 / 450 |
| 8BDGE-15□ | 15 | 1ø 220 | 50 | 4 | 30min. | 1.49 | 0.149 | 1300 | 0.23 | 1.12 | 0.112 | 1.5 / 450 |
| | | 1ø 240 | | | | 1.77 | 0.177 | | 0.25 | 1.12 | 0.112 | |
| 8BDG3(G)-15□ | 15 | 3ø 220 | 50 | 4 | Cont. | 7.61 | 0.761 | 1350 | 0.29 | 1.08 | 0.108 | – |
| | | | 60 | | | 6.15 | 0.615 | 1600 | 0.26 | 0.91 | 0.091 | |
| | | 3ø 230 | 50 | 4 | Cont. | 8.25 | 0.825 | 1350 | 0.32 | 1.08 | 0.108 | |
| | | | 60 | | | 6.72 | 0.672 | 1600 | 0.28 | 0.91 | 0.091 | |
| 8BDG4(K)-15□ | 15 | 3ø 380 | 50 | 4 | Cont. | 5.70 | 0.570 | 1350 | 0.12 | 1.08 | 0.108 | – |
| | | | 60 | | | 4.53 | 0.453 | 1600 | 0.11 | 0.91 | 0.091 | |
| | | 3ø 400 | 50 | 4 | Cont. | 6.26 | 0.626 | 1350 | 0.13 | 1.08 | 0.108 | |
| | | | 60 | | | 5.03 | 0.503 | 1600 | 0.12 | 0.91 | 0.091 | |
| 8BDG5(L)-15□ | 15 | 3ø 415 | 50 | 4 | Cont. | 6.68 | 0.668 | 1350 | 0.14 | 1.08 | 0.108 | – |
| | | | 60 | | | 5.40 | 0.540 | 1600 | 0.12 | 0.91 | 0.091 | |
| | | 3ø 440 | 50 | 4 | Cont. | 7.39 | 0.739 | 1350 | 0.15 | 1.08 | 0.108 | |
| | | | 60 | | | 6.02 | 0.602 | 1600 | 0.13 | 0.91 | 0.091 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 |
| 8BDG*-15G | 8GBK□BMH | kgfcm | 2.2 | 2.7 | 3.7 | 4.4 | 5.5 | 6.7 | 7.4 | 9.2 | 11.1 | 13.3 | 13.3 | 16.7 | 20.0 | 24.0 | 26.7 | 30.1 | 36.2 | 45.2 | 54.2 | 60.3 | 72.3 |
| | | N.m | 0.22 | 0.26 | 0.36 | 0.43 | 0.54 | 0.65 | 0.72 | 0.91 | 1.09 | 1.30 | 1.31 | 1.63 | 1.96 | 2.35 | 2.61 | 2.95 | 3.54 | 4.43 | 5.32 | 5.91 | 7.09 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 12 | 10 | 9 | 7 | 6 | 5 |
| 8BDG*-15G | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 8BDG*-15W | 8WD□BL/□ BR/□BRL | kgfcm | 7.5 | 8.8 | 10.5 | 12.2 | 16.0 | 18.1 | 21.0 | 27.4 | 30.1 |
| | | N.m | 0.73 | 0.86 | 1.03 | 1.19 | 1.57 | 1.77 | 2.06 | 2.68 | 2.95 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 |
| 8BDG*-15G | 8GBK□BMH | kgfcm | 2.6 | 3.2 | 4.4 | 5.3 | 6.6 | 7.9 | 8.8 | 11.0 | 13.1 | 15.8 | 15.8 | 19.8 | 23.7 | 28.4 | 31.6 | 35.7 | 42.9 | 53.6 | 64.3 | 71.4 | 80.0 |
| | | N.m | 0.26 | 0.31 | 0.43 | 0.52 | 0.64 | 0.77 | 0.86 | 1.07 | 1.29 | 1.55 | 1.55 | 1.94 | 2.32 | 2.79 | 3.10 | 3.50 | 4.20 | 5.25 | 6.30 | 7.00 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 10 | 8 | 7.5 | 6 | 5 | 4 |
| 8BDG*-15G | 8GBK□BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

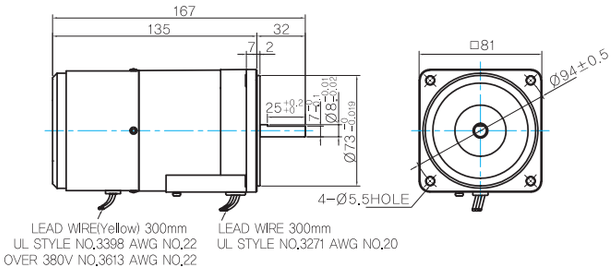
| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 8BDG*-15W | 8WD□BL/□ BR/□BRL | kgfcm | 8.9 | 10.4 | 12.5 | 14.4 | 18.9 | 21.4 | 24.9 | 32.5 | 35.7 |
| | | N.m | 0.87 | 1.02 | 1.22 | 1.41 | 1.86 | 2.10 | 2.44 | 3.18 | 3.50 |

1) Enter the phase & voltage code in the place * within the motor model name.
2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

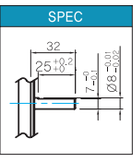
# Dimensions

## MOTOR ONLY

● MOTOR MODEL: 8BDD□-15 (NO FAN)

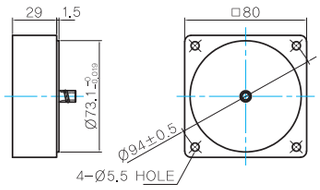



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

## INTER-DECIMAL GEARBOX

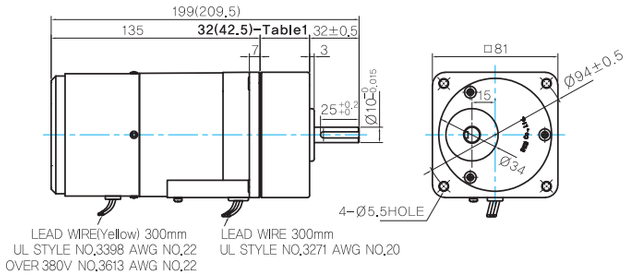
● MODEL: 8XD10□□




## GEARED MOTOR

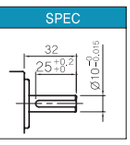
## G TYPE GEARBOX

● MOTOR MODEL:
8BDG□-15G (NO FAN)



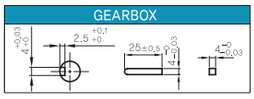

● GEARBOX MODEL:
8GBK□BMH

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

GEARBOX

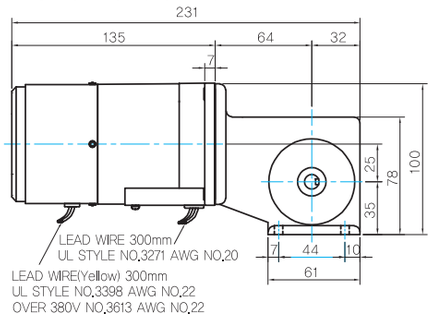


● 32(42.5)-Table1

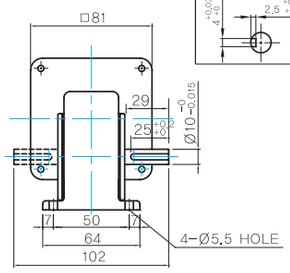
| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 8GBK3BMH - 8GBK18BMH |
| 42.5 | 8GBK20BMH - 8GBK360BMH |

## W TYPE GEARBOX

● MOTOR MODEL:
8BDG□-15W (NO FAN)

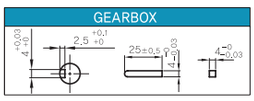



● GEARBOX MODEL:
8WD□BL/BR/BRL




● KEY SPEC

GEARBOX



## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 2.0 |
| GEAR BOX | 8GBK3BMH - 8GBK18BMH | 0.56 |
| | 8GBK20BMH - 8GBK40BMH | 0.65 |
| | 8GBK50BMH - 8GBK360BMH | 0.72 |
| | 8WD□BL/BR/BRL | 0.68 |
| | 8XD10□□ | 0.45 |

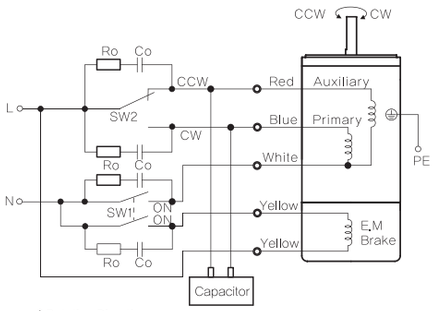
# Motor Images

| 8BDD□-15 | 8BDG□-15G+8GBK□BMH | 8BDG□-15W+8WD□BL |
|---|---|---|
| | | |

## Brake Motor 15W (□80mm)

## Connection Diagrams

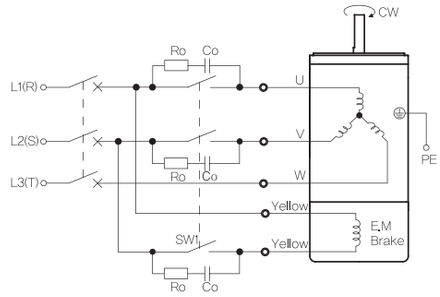
### Single Phase




*** Rotation Direction:**
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

### Three Phase




*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# 25W Brake Motor 25W(□ 80mm)

## Motor Specification

| Model<br>8BDG*-25□ : Gear Type Shaft<br>8BDD*-25: D-Cut Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8BDG1(A)-25□ | 25 | 1ø 110 | 60 | 4 | 30min. | 2.40 | 0.240 | 1600 | 0.74 | 1.52 | 0.152 | 10.0 / 250 |
| 8BDG2(D)-25□ | 25 | 1ø 220 | 60 | 4 | 30min. | 2.47 | 0.247 | 1600 | 0.35 | 1.52 | 0.152 | 2.5 / 450 |
| 8BDGE-25□ | 25 | 1ø 220 | 50 | 4 | 30min. | 1.97 | 0.197 | 1250 | 0.28 | 1.95 | 0.195 | 2.0 / 450 |
| | | 1ø 240 | | | | 2.49 | 0.249 | | 0.31 | 1.95 | 0.195 | |
| 8BDG3(G)-25□ | 25 | 3ø 220 | 50 | 4 | Cont. | 7.61 | 0.761 | 1350 | 0.29 | 1.80 | 0.180 | – |
| | | | 60 | | | 6.15 | 0.615 | 1600 | 0.26 | 1.52 | 0.152 | |
| | | 3ø 230 | 50 | 4 | Cont. | 8.25 | 0.825 | 1350 | 0.32 | 1.80 | 0.180 | |
| | | | 60 | | | 6.72 | 0.672 | 1600 | 0.28 | 1.52 | 0.152 | |
| 8BDG4(K)-25□ | 25 | 3ø 380 | 50 | 4 | Cont. | 5.70 | 0.570 | 1300 | 0.13 | 1.87 | 0.187 | – |
| | | | 60 | | | 4.53 | 0.453 | 1550 | 0.12 | 1.57 | 0.157 | |
| | | 3ø 400 | 50 | 4 | Cont. | 6.26 | 0.626 | 1300 | 0.14 | 1.87 | 0.187 | |
| | | | 60 | | | 5.03 | 0.503 | 1550 | 0.13 | 1.57 | 0.157 | |
| 8BDG5(L)-25□ | 25 | 3ø 415 | 50 | 4 | Cont. | 6.68 | 0.668 | 1300 | 0.15 | 1.87 | 0.187 | – |
| | | | 60 | | | 5.40 | 0.540 | 1550 | 0.13 | 1.57 | 0.157 | |
| | | 3ø 440 | 50 | 4 | Cont. | 7.39 | 0.739 | 1300 | 0.16 | 1.87 | 0.187 | |
| | | | 60 | | | 6.02 | 0.602 | 1550 | 0.14 | 1.57 | 0.157 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 |
| 8BDG*-25G | 8GBK□ BMH | kgfcm | 3.7 | 4.4 | 6.2 | 7.4 | 9.2 | 11.1 | 12.3 | 15.4 | 18.5 | 22.2 | 22.2 | 27.8 | 33.3 | 40.0 | 44.4 | 50.2 | 60.3 | 75.3 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.36 | 0.43 | 0.60 | 0.72 | 0.91 | 1.09 | 1.21 | 1.51 | 1.81 | 2.17 | 2.18 | 2.72 | 3.27 | 3.92 | 4.35 | 4.92 | 5.91 | 7.38 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 12 | 10 | 9 | 7 | 6 | 5 |
| 8BDG*-25G | 8GBK□ BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 8BDG*-25W | 8WD□BL/□ BR/□BRL | kgfcm | 12.5 | 14.6 | 17.6 | 20.3 | 26.6 | 30.1 | 35.1 | 45.7 | 50.2 |
| | | N.m | 1.22 | 1.43 | 1.72 | 1.99 | 2.61 | 2.95 | 3.44 | 4.47 | 4.92 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 |
| 8BDG*-25G | 8GBK□ BMH | kgfcm | 4.4 | 5.3 | 7.3 | 8.8 | 11.0 | 13.1 | 14.6 | 18.3 | 21.9 | 26.3 | 26.3 | 32.9 | 39.5 | 47.4 | 52.7 | 59.5 | 71.4 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 0.43 | 0.52 | 0.72 | 0.86 | 1.07 | 1.29 | 1.43 | 1.79 | 2.15 | 2.58 | 2.58 | 3.23 | 3.87 | 4.65 | 5.16 | 5.83 | 7.00 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 150 | 180 | 200 | 250 | 300 | 360 |
|---|---|---|---|---|---|---|---|---|
| | | r/min | 10 | 8 | 7.5 | 6 | 5 | 4 |
| 8BDG*-25G | 8GBK□ BMH | kgfcm | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | | N.m | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 | 7.84 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 8BDG*-25W | 8WD□BL/□ BR/□BRL | kgfcm | 14.8 | 17.3 | 20.8 | 24.0 | 31.6 | 35.7 | 41.6 | 54.1 | 59.5 |
| | | N.m | 1.45 | 1.70 | 2.04 | 2.35 | 3.09 | 3.50 | 4.07 | 5.30 | 5.83 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

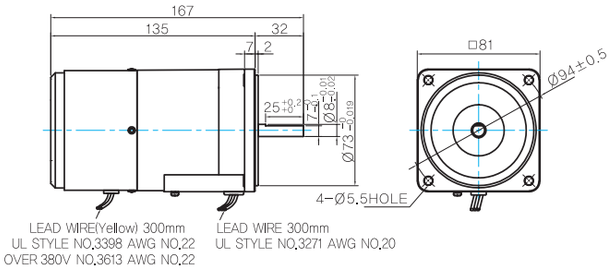
# B AC Motors

## Brake Motor 25W (□ 80mm)

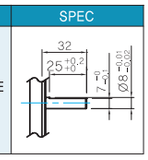
## Dimensions

### MOTOR ONLY

● MOTOR MODEL: 8BDD□-25 (NO FAN)

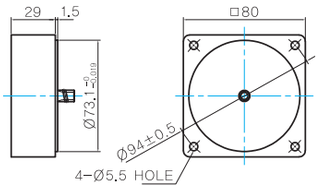



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |

### INTER-DECIMAL GEARBOX

● MODEL: 8XD10□□

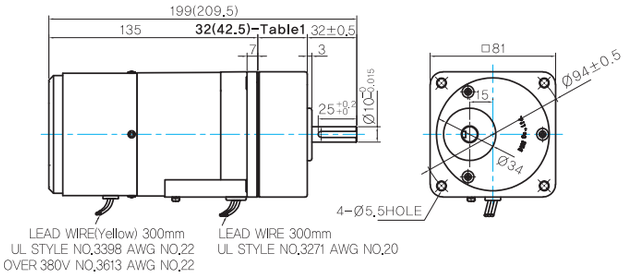



## GEARED MOTOR

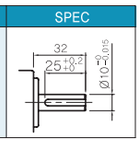
### G TYPE GEARBOX

● MOTOR MODEL:
8BDG□-25G (NO FAN)

● GEARBOX MODEL:
8GBK□BMH




● GEARBOX OUTPUT SHAFT

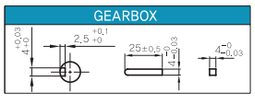
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● 32(42.5)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 32 | 8GBK3BMH - 8GBK18BMH |
| 42.5 | 8GBK20BMH - 8GBK360BMH |

● KEY SPEC

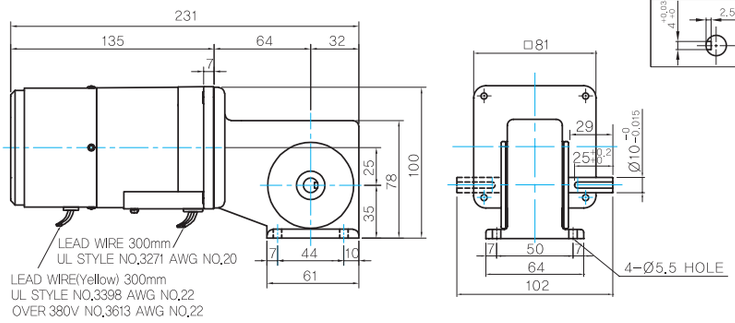
GEARBOX



### W TYPE GEARBOX

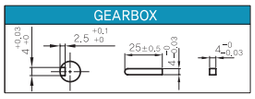
● MOTOR MODEL:
8BDG□-25W (NO FAN)

● GEARBOX MODEL:
8WD□BL/BR/BRL




● KEY SPEC

GEARBOX



### WEIGHT

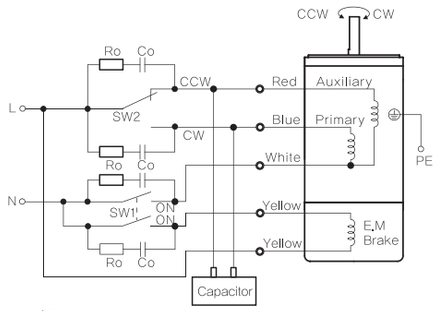
| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 2.0 |
| GEAR BOX | 8GBK3BMH - 8GBK18BMH | 0.56 |
| | 8GBK20BMH - 8GBK40BMH | 0.65 |
| | 8GBK50BMH - 8GBK360BMH | 0.72 |
| | 8WD□BL/BR/BRL | 0.68 |
| | 8XD10□□ | 0.45 |

## Motor Images

| 8BDD□-25 | 8BDG□-25G+8GBK□BMH | 8BDG□-25W+8WD□BL |
|---|---|---|
| | | |

## Connection Diagrams

### Single Phase

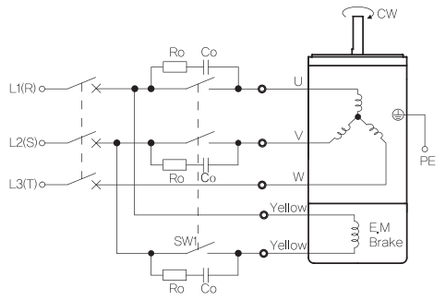



*** Rotation Direction:**

To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

### Three Phase




*** CCW Direction:**

Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# 40W Brake Motor 40W(□90mm)

## Motor Specification

| Model<br>9BDG*-40□: Gear Type Shaft<br>9BDD*-40: D-Cut Type Shaft<br>9BDK*-40: Key Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9BDG1(A)-40□ | 40 | 1ø 110 | 60 | 4 | 30min. | 4.00 | 0.400 | 1600 | 1.25 | 2.44 | 0.244 | 16.0 / 250 |
| 9BDG2(D)-40□ | 40 | 1ø 220 | 60 | 4 | 30min. | 4.00 | 0.400 | 1600 | 0.61 | 2.44 | 0.244 | 4.0 / 450 |
| 9BDGE-40□ | 40 | 1ø 220 | 50 | 4 | 30min. | 3.20 | 0.320 | 1350 | 0.36 | 2.89 | 0.289 | 3.0 / 450 |
| | | 1ø 240 | | | | 3.91 | 0.391 | | 0.39 | 2.89 | 0.289 | |
| 9BDG3(G)-40□ | 40 | 3ø 220 | 50 | 4 | Cont. | 9.90 | 0.990 | 1350 | 0.33 | 2.89 | 0.289 | – |
| | | | 60 | | | 7.90 | 0.790 | 1600 | 0.31 | 2.44 | 0.244 | |
| | | 3ø 230 | 50 | 4 | Cont. | 10.80 | 1.080 | 1350 | 0.35 | 2.89 | 0.289 | |
| | | | 60 | | | 8.50 | 0.850 | 1600 | 0.33 | 2.44 | 0.244 | |
| 9BDG4(K)-40□ | 40 | 3ø 380 | 50 | 4 | Cont. | 10.20 | 1.020 | 1350 | 0.19 | 2.89 | 0.289 | – |
| | | | 60 | | | 8.00 | 0.800 | 1600 | 0.18 | 2.44 | 0.244 | |
| | | 3ø 400 | 50 | 4 | Cont. | 11.10 | 1.110 | 1350 | 0.20 | 2.89 | 0.289 | |
| | | | 60 | | | 8.80 | 0.880 | 1600 | 0.19 | 2.44 | 0.244 | |
| 9BDG5(L)-40□ | 40 | 3ø 415 | 50 | 4 | Cont. | 10.00 | 1.000 | 1350 | 0.17 | 2.89 | 0.289 | – |
| | | | 60 | | | 8.00 | 0.800 | 1600 | 0.16 | 2.44 | 0.244 | |
| | | 3ø 440 | 50 | 4 | Cont. | 11.10 | 1.110 | 1350 | 0.18 | 2.89 | 0.289 | |
| | | | 60 | | | 8.90 | 0.890 | 1600 | 0.17 | 2.44 | 0.244 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 |
| 9BDG*-40G | 9GBK□BMH | kgfcm | 3.9 | 5.9 | 7.1 | 9.9 | 11.8 | 14.8 | 17.8 | 19.7 | 24.7 | 29.6 | 35.5 | 35.6 | 44.4 | 53.3 | 64.0 | 71.1 | 80.4 | 96.4 | 100.0 | 100.0 | 100.0 |
| | | N.m | 0.39 | 0.58 | 0.70 | 0.97 | 1.16 | 1.45 | 1.74 | 1.93 | 2.42 | 2.90 | 3.48 | 3.48 | 4.35 | 5.23 | 6.27 | 6.97 | 7.87 | 9.45 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|
| | | r/min | 15 | 12 | 10 | 9 |
| 9BDG*-40G | 9GBK□BMH | kgfcm | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9BDG*-40W | 9WD□BL/□BR/□BRL | kgfcm | 20.0 | 23.4 | 28.1 | 32.4 | 42.6 | 48.2 | 56.1 | 73.1 | 80.4 |
| | | N.m | 1.96 | 2.29 | 2.76 | 3.18 | 4.18 | 4.72 | 5.50 | 7.16 | 7.87 |

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9BDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 3.9 | 5.9 | 7.1 | 9.9 | 11.8 | 14.8 | 17.8 | 19.7 | 22.2 | 26.7 | 32.0 | 35.6 | 40.2 | 48.2 | 57.9 | 64.3 | 80.4 | 96.4 | 107.7 | 129.3 | 143.7 | 172.4 | 200.0 | 200.0 | 200.0 |
| | | N.m | 0.39 | 0.58 | 0.70 | 0.97 | 1.16 | 1.45 | 1.74 | 1.93 | 2.18 | 2.61 | 3.14 | 3.48 | 3.94 | 4.72 | 5.67 | 6.30 | 7.87 | 9.45 | 10.56 | 12.67 | 14.08 | 16.90 | 19.60 | 19.60 | 19.60 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750.0 | 500.0 | 417.0 | 300.0 | 250.0 | 200.0 | 167.0 | 150.0 | 120.0 | 100.0 | 83.0 | 75.0 | 60.0 | 50.0 | 42.0 | 38.0 | 30.0 | 25.0 | 20.0 | 17.0 | 15.0 |
| 9BDG*-40G | 9GBK□BMH | kgfcm | 4.7 | 7.0 | 8.4 | 11.7 | 14.0 | 17.5 | 21.0 | 23.4 | 29.2 | 35.1 | 42.1 | 42.1 | 52.7 | 63.2 | 75.8 | 84.3 | 95.2 | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 0.46 | 0.69 | 0.82 | 1.15 | 1.37 | 1.72 | 2.06 | 2.29 | 2.86 | 3.44 | 4.12 | 4.13 | 5.16 | 6.19 | 7.43 | 8.26 | 9.33 | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|
| | | r/min | 13.0 | 10.0 | 8.0 | 7 |
| 9BDG*-40G | 9GBK□BMH | kgfcm | 100.0 | 100.0 | 100.0 | 100.0 |
| | | N.m | 9.80 | 9.80 | 9.80 | 9.80 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9BDG*-40W | 9WD□BL/□BR/□BRL | kgfcm | 23.7 | 27.7 | 33.3 | 38.4 | 50.5 | 57.1 | 66.5 | 86.6 | 95.2 |
| | | N.m | 2.32 | 2.72 | 3.27 | 3.77 | 4.95 | 5.60 | 6.52 | 8.48 | 9.33 |

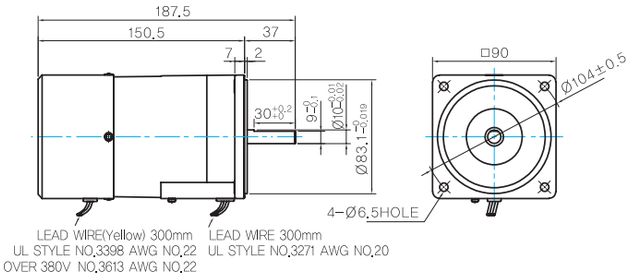
| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9BDG*-40P | 9PBK□BH<br>9PFK□BH | kgfcm | 4.7 | 7.0 | 8.4 | 11.7 | 14.0 | 17.5 | 21.0 | 23.4 | 26.3 | 31.6 | 37.9 | 42.1 | 47.6 | 57.1 | 68.6 | 76.2 | 95.2 | 114.3 | 127.7 | 153.2 | 170.3 | 200.0 | 200.0 | 200.0 | 200.0 |
| | | N.m | 0.46 | 0.69 | 0.82 | 1.15 | 1.37 | 1.72 | 2.06 | 2.29 | 2.58 | 3.10 | 3.72 | 4.13 | 4.67 | 5.60 | 6.72 | 7.47 | 9.33 | 11.20 | 12.51 | 15.02 | 16.69 | 19.60 | 19.60 | 19.60 | 19.60 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

# Dimensions

## MOTOR ONLY

- MOTOR MODEL: 9BDD□-40 (NO FAN)

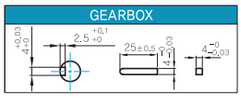



- MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE | |
| 9BDD□-40 | |
| KEY TYPE | |
| 9BDK□-40 | |

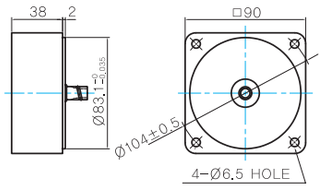
- KEY SPEC

GEARBOX



## INTER-DECIMAL GEARBOX

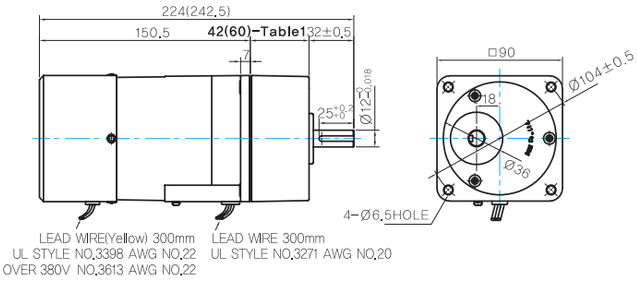
- MODEL: 9XD10□□




## GEARED MOTOR

## G TYPE GEARBOX

- MOTOR MODEL: 9BDG□-40G (NO FAN)
- GEARBOX MODEL: 9GBK□BMH

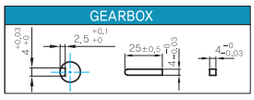



- GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE | |

- KEY SPEC

GEARBOX

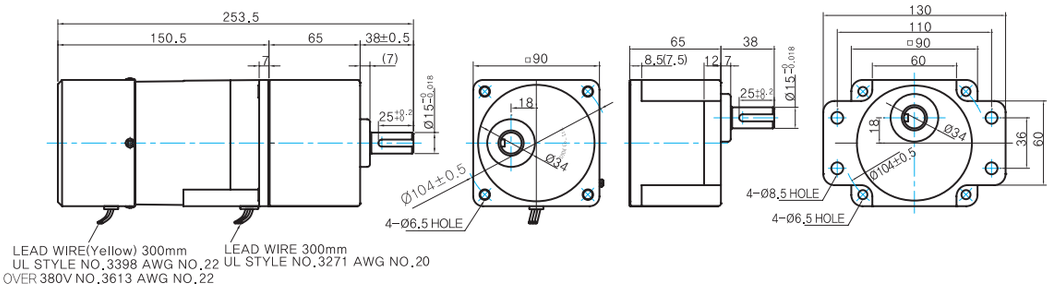


- 42(60)-Table1

| SIZE(mm) | GEAR RATIO |
|---|---|
| 42 | 9GBK2BMH - 9GBK18BMH |
| 60 | 9GBK20BMH - 9GBK200BMH |

## P TYPE GEARBOX

- MOTOR MODEL: 9BDG□-40P (NO FAN)
- GEARBOX MODEL: 9PBK□BH
- GEARBOX MODEL: 9PFK□BH

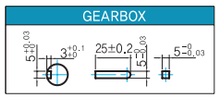



- GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE | |
| 9PBK□BH<br>9PFK□BH | |

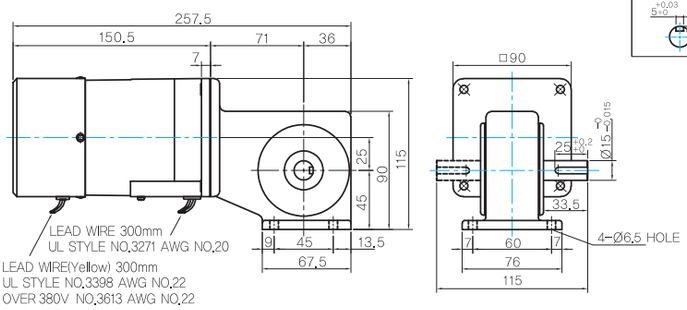
- KEY SPEC

GEARBOX



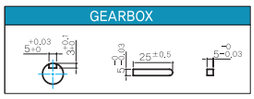
## W TYPE GEARBOX

- MOTOR MODEL: 9BDG□-40W (NO FAN)
- GEARBOX MODEL: 9WD□BL/BR/BRL




- KEY SPEC

GEARBOX



## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.0 |
| GEAR BOX | 9GBK2BMH ~ 9GBK18BMH | 0.78 |
| | 9GBK20BMH ~ 9GBK40BMH | 1.1 |
| | 9GBK50BMH ~ 9GBK200BMH | 1.2 |
| | 9PB(F)K2BH ~ 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH ~ 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH ~ 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH ~ 9PB(F)K200BH | 1.47 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9XD10□□ | 0.6 |

# B AC Motors

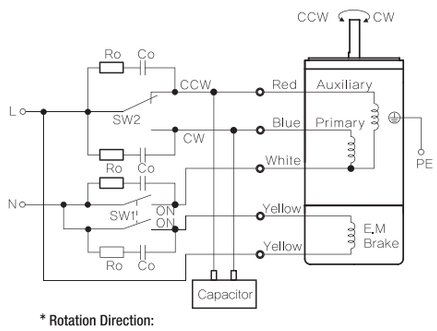
## Brake Motor 40W (□90mm)

## Motor Images

| 9BDD□-40 | 9BDG□-40G+9GBK□BMH | 9BDG□-40P+9PBK□BH | 9BDG□-40W+9WD□BL |
|---|---|---|---|
| | | | |

## Connection Diagrams

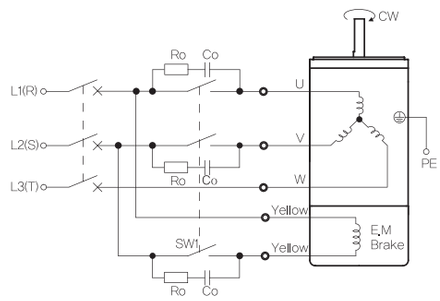
### Single Phase




*** Rotation Direction:**
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

### Three Phase




*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# 60W Brake Motor 60W(□ 90mm)

## Motor Specification

| Model<br>9BDG*-60F□ : Gear Type Shaft<br>9BDD*-60F: D-Cut Type Shaft<br>9BDK*-60F: Key Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9BDG1(A)-60F□ | 60 | 1ø 110 | 60 | 4 | 30min. | 5.20 | 0.520 | 1600 | 1.60 | 3.65 | 0.365 | 20.0 / 250 |
| 9BDG2(D)-60F□ | 60 | 1ø 220 | 60 | 4 | 30min. | 5.19 | 0.519 | 1600 | 0.75 | 3.65 | 0.365 | 5.0 / 450 |
| 9BDGE-60F□ | 60 | 1ø 220 | 50 | 4 | 30min. | 5.52 | 0.552 | 1300 | 0.59 | 4.50 | 0.450 | 5.0 / 450 |
| | | 1ø 240 | | | | 6.52 | 0.652 | | 0.64 | 4.50 | 0.450 | |
| 9BDG3(G)-60F□ | 60 | 3ø 220 | 50 | 4 | Cont. | 17.20 | 1.720 | 1350 | 0.59 | 4.33 | 0.433 | – |
| | | | 60 | | | 13.80 | 1.380 | 1600 | 0.53 | 3.65 | 0.365 | |
| | | 3ø 230 | 50 | 4 | Cont. | 18.80 | 1.880 | 1350 | 0.62 | 4.33 | 0.433 | |
| | | | 60 | | | 15.00 | 1.500 | 1600 | 0.56 | 3.65 | 0.365 | |
| 9BDG4(K)-60F□ | 60 | 3ø 380 | 50 | 4 | Cont. | 16.70 | 1.670 | 1350 | 0.31 | 4.33 | 0.433 | – |
| | | | 60 | | | 13.40 | 1.340 | 1600 | 0.28 | 3.65 | 0.365 | |
| | | 3ø 400 | 50 | 4 | Cont. | 18.30 | 1.830 | 1350 | 0.34 | 4.33 | 0.433 | |
| | | | 60 | | | 14.70 | 1.470 | 1600 | 0.30 | 3.65 | 0.365 | |
| 9BDG5(L)-60F□ | 60 | 3ø 415 | 50 | 4 | Cont. | 16.70 | 1.670 | 1350 | 0.29 | 4.33 | 0.433 | – |
| | | | 60 | | | 13.40 | 1.340 | 1600 | 0.26 | 3.65 | 0.365 | |
| | | 3ø 440 | 50 | 4 | Cont. | 18.50 | 1.850 | 1350 | 0.31 | 4.33 | 0.433 | |
| | | | 60 | | | 15.00 | 1.500 | 1600 | 0.28 | 3.65 | 0.365 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9BDG*-60FP | 9PBK□BH<br>9PFK□BH | kgfcm | 5.9 | 8.9 | 10.7 | 14.8 | 17.8 | 22.2 | 26.6 | 29.6 | 33.3 | 40.0 | 48.0 | 53.3 | 60.3 | 72.3 | 86.8 | 96.4 | 120.5 | 144.6 | 161.6 | 193.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | | N.m | 0.58 | 0.87 | 1.04 | 1.45 | 1.74 | 2.17 | 2.61 | 2.90 | 3.27 | 3.92 | 4.70 | 5.23 | 5.91 | 7.09 | 8.50 | 9.45 | 11.81 | 14.17 | 15.84 | 19.01 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG*-60FH | 9HBK□BH<br>9HFK□BH | kgfcm | – | 8.9 | 10.7 | 14.8 | 17.8 | 22.2 | 26.6 | 29.6 | 33.3 | 40.0 | 48.0 | 53.3 | 60.3 | 72.3 | 86.8 | 96.4 | 120.5 | 144.6 | 161.6 | 193.9 | 215.5 | 258.6 | 300.0 | 300.0 | 300.0 |
| | | N.m | | 0.87 | 1.04 | 1.45 | 1.74 | 2.17 | 2.61 | 2.90 | 3.27 | 3.92 | 4.70 | 5.23 | 5.91 | 7.09 | 8.50 | 9.45 | 11.81 | 14.17 | 15.84 | 19.01 | 21.12 | 25.34 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9BDG*-60FW | 9WD□BL/□BR/□BRL | kgfcm | 30.0 | 35.1 | 42.2 | 48.7 | 63.9 | 72.3 | 84.2 | 109.6 | 120.5 |
| | | N.m | 2.94 | 3.44 | 4.13 | 4.77 | 6.26 | 7.09 | 8.25 | 10.74 | 11.81 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9BDG*-60FWH | 9WHD□-030 | kgfcm | 12.7 | 18.4 | 23.7 | 33.3 | 42.1 | 48.2 | 56.1 | 69.0 | 78.9 | 87.7 | 102.9 |
| | | N.m | 1.25 | 1.80 | 2.32 | 3.26 | 4.12 | 4.72 | 5.50 | 6.76 | 7.73 | 8.59 | 10.08 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9BDG*-60FP | 9PBK□BH<br>9PFK□BH | kgfcm | 7.0 | 10.5 | 12.6 | 17.5 | 21.0 | 26.3 | 31.6 | 35.1 | 39.5 | 47.4 | 56.9 | 63.2 | 71.4 | 85.7 | 102.9 | 114.3 | 142.9 | 171.4 | 191.6 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | | N.m | 0.69 | 1.03 | 1.24 | 1.72 | 2.06 | 2.58 | 3.09 | 3.44 | 3.87 | 4.65 | 5.57 | 6.19 | 7.00 | 8.40 | 10.08 | 11.20 | 14.00 | 16.80 | 18.77 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG*-60FH | 9HBK□BH<br>9HFK□BH | kgfcm | – | 10.5 | 12.6 | 17.5 | 21.0 | 26.3 | 31.6 | 35.1 | 39.5 | 47.4 | 56.9 | 63.2 | 71.4 | 85.7 | 102.9 | 114.3 | 142.9 | 171.4 | 191.6 | 229.9 | 255.4 | 300.0 | 300.0 | 300.0 | 300.0 |
| | | N.m | | 1.03 | 1.24 | 1.72 | 2.06 | 2.58 | 3.09 | 3.44 | 3.87 | 4.65 | 5.57 | 6.19 | 7.00 | 8.40 | 10.08 | 11.20 | 14.00 | 16.80 | 18.77 | 22.53 | 25.03 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9BDG*-60FW | 9WD□BL/□BR/□BRL | kgfcm | 35.5 | 41.6 | 50.0 | 57.7 | 75.8 | 85.7 | 99.7 | 129.9 | 122.4 |
| | | N.m | 3.48 | 4.07 | 4.90 | 5.65 | 7.42 | 8.40 | 9.77 | 12.73 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9BDG*-60FWH | 9WHD□-030 | kgfcm | 15.1 | 21.8 | 28.1 | 39.5 | 49.9 | 57.1 | 66.5 | 81.7 | 93.5 | 103.9 | 121.9 |
| | | N.m | 1.48 | 2.14 | 2.75 | 3.87 | 4.89 | 5.60 | 6.52 | 8.01 | 9.16 | 10.18 | 11.95 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

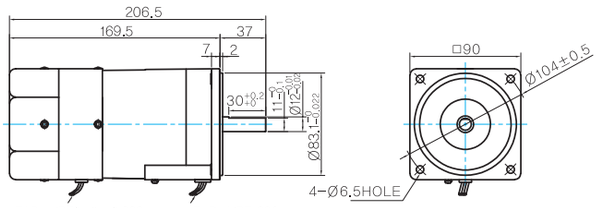
# B AC Motors

## Brake Motor 60W (□ 90mm)

## Dimensions

### MOTOR ONLY

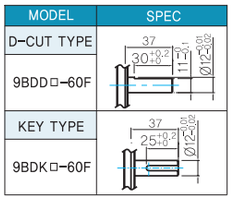
● MOTOR MODEL:
9BDD□-60F (GENERAL FAN)



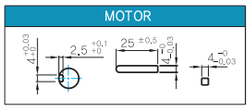

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● MOTOR OUTPUT SHAFT

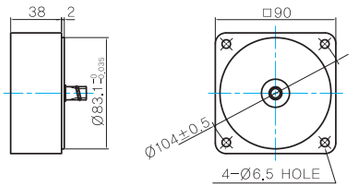
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9BDD□-60F | |
| KEY TYPE | |
| 9BDK□-60F | |

● KEY SPEC

| MOTOR |
|---|
|  |

### INTER-DECIMAL GEARBOX

● MODEL:
9XD10□□



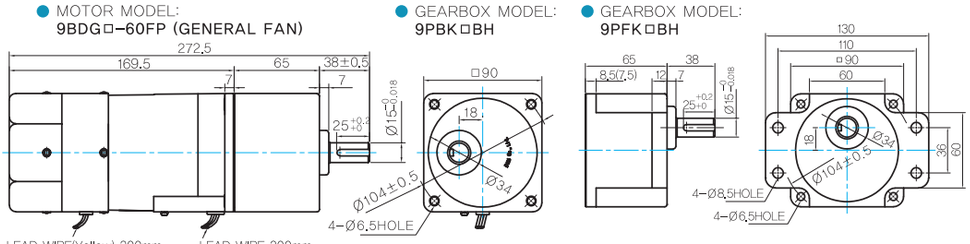

## GEARED MOTOR

### P TYPE GEARBOX

● MOTOR MODEL:
9BDG□-60FP (GENERAL FAN)

● GEARBOX MODEL:
9PBK□BH

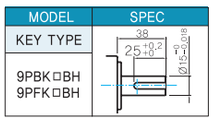
● GEARBOX MODEL:
9PFK□BH



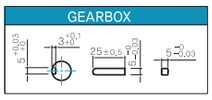

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

● KEY SPEC

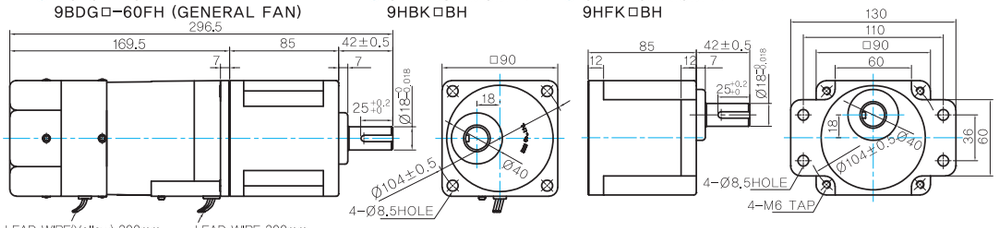
| GEARBOX |
|---|
|  |

### H TYPE GEARBOX

● MOTOR MODEL:
9BDG□-60FH (GENERAL FAN)

● GEARBOX MODEL:
9HBK□BH

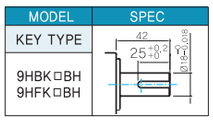
● GEARBOX MODEL:
9HFK□BH



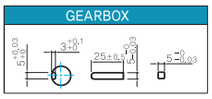

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

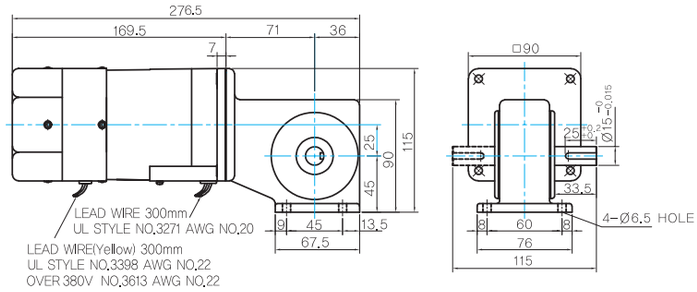
● KEY SPEC

| GEARBOX |
|---|
|  |

### W TYPE GEARBOX

● MOTOR MODEL:
9BDG□-60FW (GENERAL FAN)

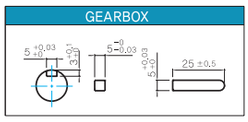
● GEARBOX MODEL:
9WD□BL/BR/BRL




LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

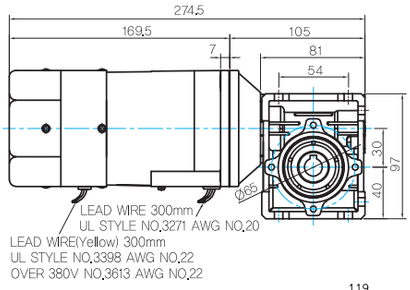
LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

● KEY SPEC

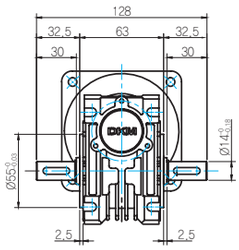
| GEARBOX |
|---|
|  |

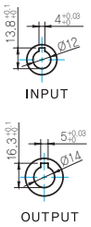
## WH TYPE GEARBOX

● MOTOR MODEL:
9BDG□-60FWH (GENERAL FAN)

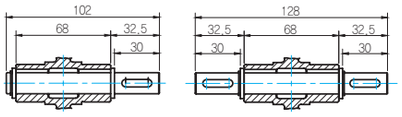



● GEARBOX MODEL:
9WHD□-030



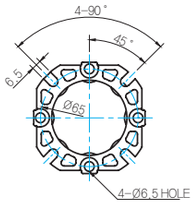



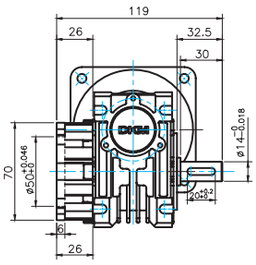

● SHAFT



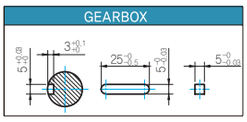

Unidirectional Bi-directional

● FLANGE




● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.3 |
| GEAR BOX | 9PB(F)K2BH - 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH - 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH - 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH - 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

## Motor Images

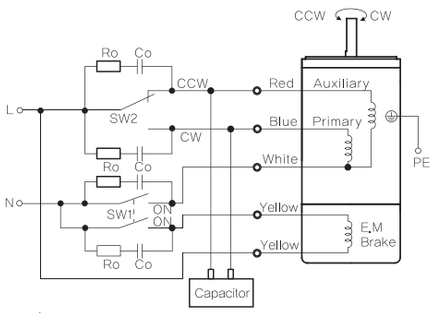
| 9BDD□-60F | 9BDG□-60FP+9PBK□BH | 9BDG□-60FP+9PFK□BH | 9BDG□-60FH+9HBK□BH |
|---|---|---|---|
| | | | |

| 9BDG□-60FH+9HFK□BH | 9BDG□-60FW+9WD□BL | 9BDG□-60FWH+9WHD□ |
|---|---|---|
| | | |

## Brake Motor 60W (□ 90mm)

## Connection Diagrams

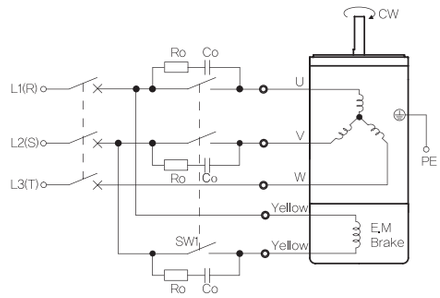
### Single Phase




*** Rotation Direction:**
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

### Three Phase




*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# 90W Brake Motor 90W(□ 90mm)

## Motor Specification

| Model<br>9BDG*-90F□: Gear Type Shaft<br>9BDD*-90F: D-Cut Type Shaft<br>9BDK*-90F: Key Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9BDG1(A)-90F□ | 90 | 1ø 110 | 60 | 4 | 30min. | 6.49 | 0.649 | 1600 | 2.00 | 5.48 | 0.548 | 25.0 / 250 |
| 9BDG2(D)-90F□ | 90 | 1ø 220 | 60 | 4 | 30min. | 6.11 | 0.611 | 1600 | 1.04 | 5.48 | 0.548 | 6.0 / 450 |
| 9BDGE-90F□ | 90 | 1ø 220 | 50 | 4 | 30min. | 6.07 | 0.607 | 1250 | 0.92 | 7.01 | 0.701 | 6.0 / 450 |
| | | 1ø 240 | | | | 7.15 | 0.715 | | 1.00 | 7.01 | 0.701 | |
| 9BDG3(G)-90F□ | 90 | 3ø 220 | 50 | 4 | Cont. | 20.50 | 2.050 | 1350 | 0.65 | 6.49 | 0.649 | - |
| | | | 60 | | | 16.20 | 1.620 | 1600 | 0.60 | 5.48 | 0.548 | |
| | | 3ø 230 | 50 | 4 | Cont. | 22.00 | 2.200 | 1350 | 0.68 | 6.49 | 0.649 | |
| | | | 60 | | | 17.60 | 1.760 | 1600 | 0.63 | 5.48 | 0.548 | |
| 9BDG4(K)-90F□ | 90 | 3ø 380 | 50 | 4 | Cont. | 20.00 | 2.000 | 1350 | 0.35 | 6.49 | 0.649 | - |
| | | | 60 | | | 15.70 | 1.570 | 1600 | 0.33 | 5.48 | 0.548 | |
| | | 3ø 400 | 50 | 4 | Cont. | 21.80 | 2.180 | 1350 | 0.37 | 6.49 | 0.649 | |
| | | | 60 | | | 17.30 | 1.730 | 1600 | 0.35 | 5.48 | 0.548 | |
| 9BDG5(L)-90F□ | 90 | 3ø 415 | 50 | 4 | Cont. | 20.50 | 2.050 | 1350 | 0.33 | 6.49 | 0.649 | - |
| | | | 60 | | | 16.20 | 1.620 | 1600 | 0.31 | 5.48 | 0.548 | |
| | | 3ø 440 | 50 | 4 | Cont. | 22.70 | 2.270 | 1350 | 0.36 | 6.49 | 0.649 | |
| | | | 60 | | | 18.10 | 1.810 | 1600 | 0.33 | 5.48 | 0.548 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9BDG*-90FP | 9PBK□BH | kgfcm | 8.9 | 13.3 | 16.0 | 22.2 | 26.6 | 33.3 | 39.9 | 44.4 | 50.0 | 60.0 | 72.0 | 80.0 | 90.4 | 108.5 | 130.2 | 144.6 | 180.8 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 0.87 | 1.30 | 1.57 | 2.17 | 2.61 | 3.26 | 3.91 | 4.35 | 4.90 | 5.88 | 7.06 | 7.84 | 8.86 | 10.63 | 12.76 | 14.17 | 17.72 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG*-90FH | 9HBK□BH | kgfcm | - | 13.3 | 16.0 | 22.2 | 26.6 | 33.3 | 39.9 | 44.4 | 50.0 | 60.0 | 72.0 | 80.0 | 90.4 | 108.5 | 130.2 | 144.6 | 180.8 | 217.0 | 242.4 | 290.9 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.30 | 1.57 | 2.17 | 2.61 | 3.26 | 3.91 | 4.35 | 4.90 | 5.88 | 7.06 | 7.84 | 8.86 | 10.63 | 12.76 | 14.17 | 17.72 | 21.26 | 23.76 | 28.51 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9BDG*-90FW | 9WD□BL/□BR/□BRL | kgfcm | 44.9 | 52.6 | 63.3 | 73.0 | 95.9 | 108.5 | 126.2 | 142.9 | 122.4 |
| | | N.m | 4.40 | 5.15 | 6.20 | 7.15 | 9.40 | 10.63 | 12.37 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9BDG*-90FWH | 9WHD□-030 | kgfcm | 19.1 | 27.6 | 35.5 | 50.0 | 63.1 | 72.3 | 84.2 | 103.4 | 118.3 | 131.5 | 132.7 |
| | | N.m | 1.87 | 2.71 | 3.48 | 4.90 | 6.19 | 7.09 | 8.25 | 10.14 | 11.60 | 12.89 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9BDG*-90FHC | 9HC□□ | kgfcm | 60 | 80 | 100 | 120 | 160 | 200 | 240 | 320 | 400 | 480 | 640 | 800 | 900 | 960 |
| | | N.m | 5.88 | 7.84 | 9.8 | 11.8 | 15.7 | 19.6 | 23.5 | 31.4 | 39.2 | 47 | 62.7 | 78.4 | 88.2 | 94.1 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9BDG*-90FP | 9PBK□BH | kgfcm | 10.5 | 15.8 | 18.9 | 26.3 | 31.6 | 39.4 | 47.3 | 52.6 | 59.3 | 71.1 | 85.3 | 94.8 | 107.1 | 128.6 | 154.3 | 171.4 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.03 | 1.55 | 1.86 | 2.58 | 3.09 | 3.87 | 4.64 | 5.15 | 5.81 | 6.97 | 8.36 | 9.29 | 10.50 | 12.60 | 15.12 | 16.80 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG*-90FH | 9HBK□BH | kgfcm | - | 15.8 | 18.9 | 26.3 | 31.6 | 39.4 | 47.3 | 52.6 | 59.3 | 71.1 | 85.3 | 94.8 | 107.1 | 128.6 | 154.3 | 171.4 | 214.3 | 257.1 | 287.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.55 | 1.86 | 2.58 | 3.09 | 3.87 | 4.64 | 5.15 | 5.81 | 6.97 | 8.36 | 9.29 | 10.50 | 12.60 | 15.12 | 16.80 | 21.00 | 25.20 | 28.16 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9BDG*-90FW | 9WD□BL/□BR/□BRL | kgfcm | 53.2 | 62.3 | 75.0 | 86.5 | 113.6 | 128.6 | 149.6 | 142.9 | 122.4 |
| | | N.m | 5.22 | 6.11 | 7.35 | 8.48 | 11.14 | 12.60 | 14.66 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9BDG*-90FWH | 9WHD□-030 | kgfcm | 22.6 | 32.7 | 42.1 | 59.2 | 74.8 | 85.7 | 99.7 | 122.6 | 140.3 | 155.8 | 132.7 |
| | | N.m | 2.21 | 3.21 | 4.12 | 5.80 | 7.33 | 8.40 | 9.77 | 12.01 | 13.75 | 15.27 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9BDG*-90FHC | 9HC□□ | kgfcm | 71.1 | 94.8 | 119 | 142 | 190 | 237 | 284 | 379 | 474 | 569 | 758 | 948 | 1067 | 1138 |
| | | N.m | 6.97 | 9.28 | 11.7 | 13.9 | 18.6 | 23.2 | 27.8 | 37.1 | 46.5 | 55.8 | 74.3 | 92.9 | 105 | 112 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

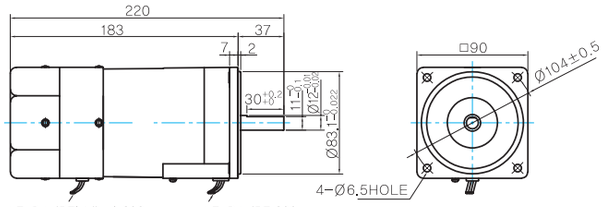
# B AC Motors

## Brake Motor 90W (□ 90mm)

## Dimensions

### MOTOR ONLY

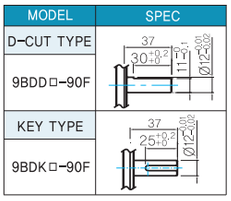
● MOTOR MODEL:
9BDD□-90F (GENERAL FAN)



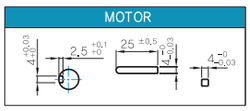

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● MOTOR OUTPUT SHAFT

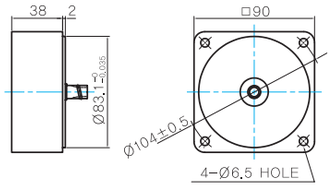
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9BDD□-90F | |
| KEY TYPE | |
| 9BDK□-90F | |

● KEY SPEC

| MOTOR |
|---|
|  |

### INTER-DECIMAL GEARBOX

● MODEL:
9XD10□□



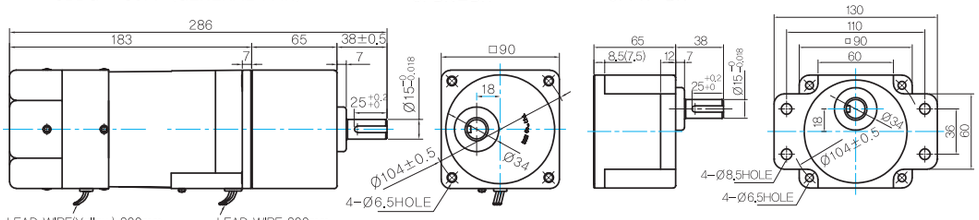

## GEARED MOTOR

### P TYPE GEARBOX

● MOTOR MODEL:
9BDG□-90FP (GENERAL FAN)

● GEARBOX MODEL:
9PBK□BH

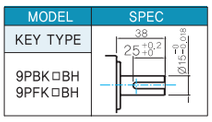
● GEARBOX MODEL:
9PFK□BH



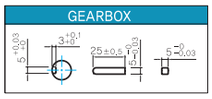

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

● KEY SPEC

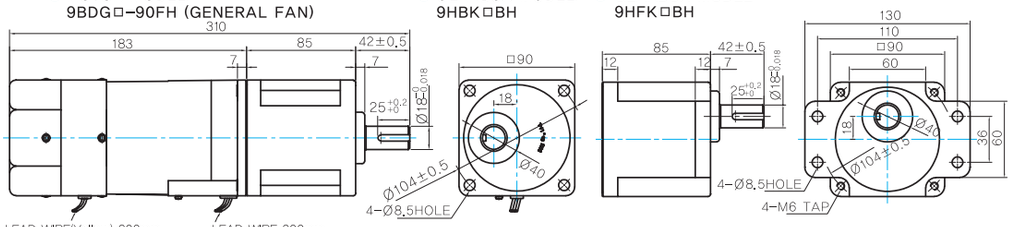
| GEARBOX |
|---|
|  |

### H TYPE GEARBOX

● MOTOR MODEL:
9BDG□-90FH (GENERAL FAN)

● GEARBOX MODEL:
9HBK□BH

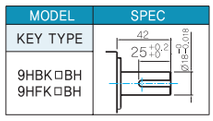
● GEARBOX MODEL:
9HFK□BH



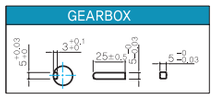

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● GEARBOX OUTPUT SHAFT

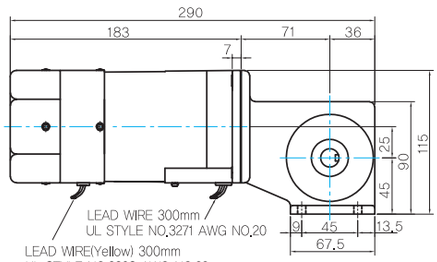
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

● KEY SPEC

| GEARBOX |
|---|
|  |

### W TYPE GEARBOX

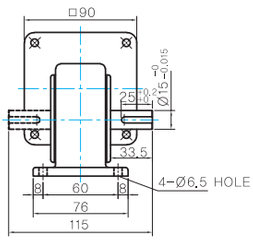
● MOTOR MODEL:
9BDG□-90FW (GENERAL FAN)



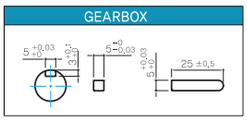

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

● GEARBOX MODEL:
9WD□BL/BR/BRL

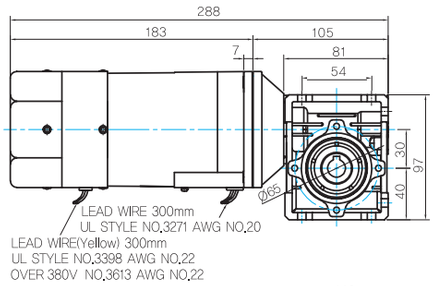



● KEY SPEC

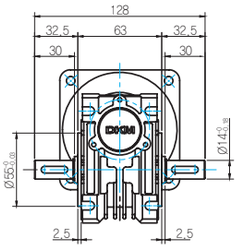
| GEARBOX |
|---|
|  |

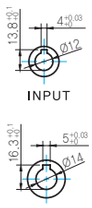
## WH TYPE GEARBOX

- MOTOR MODEL:
  9BDG□-90FWH (GENERAL FAN)

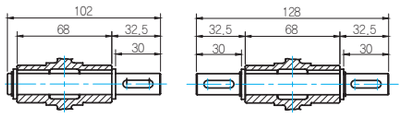



- GEARBOX MODEL:
  9WHD□-030



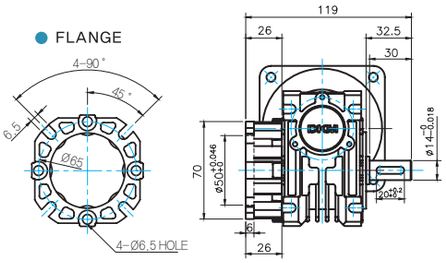




- SHAFT

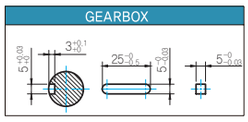



Unidirectional Bi-directional

- FLANGE

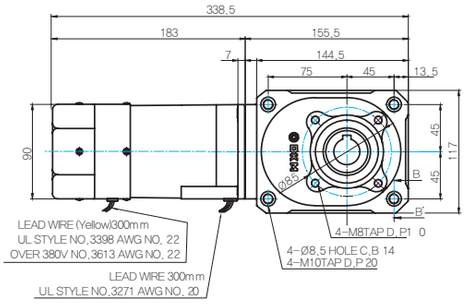



- KEY SPEC

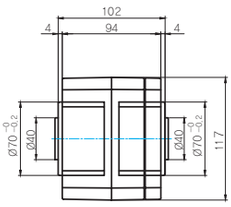



## HC TYPE GEARBOX

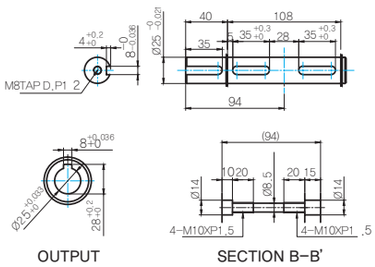
- MOTOR MODEL :
  9BDG□-90FHC (GENERAL FAN)



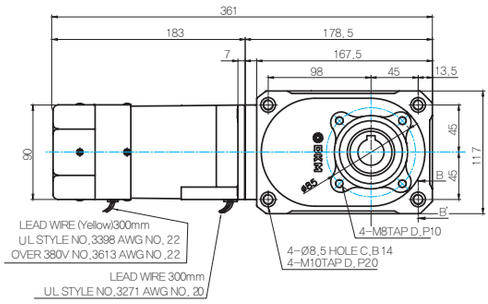

- GEARBOX MODEL:
  9HC(15 ~ 60)□



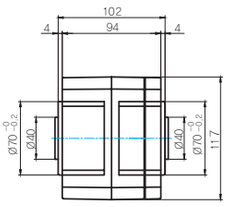

- SHAFT



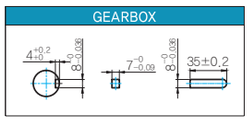

- MOTOR MODEL :
  9BDG□-90FHC (GENERAL FAN)




- GEARBOX MODEL :
  9HC(80 ~ 240)□




- KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9PB(F)K2BH - 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH - 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH - 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH - 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

# B AC Motors

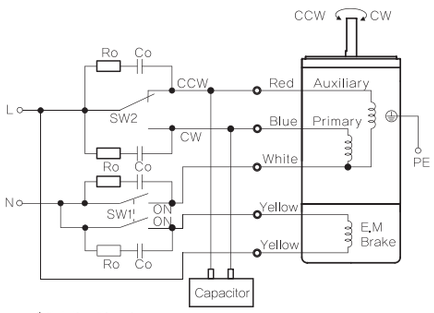
## Brake Motor 90W (□ 90mm)

## Motor Images

| 9BDD□-90F | 9BDG□-90FP+9PBK□BH | 9BDG□-90FP+9PFK□BH | 9BDG□-90FH+9HBK□BH |
|---|---|---|---|
| | | | |
| **9BDG□-90FH+9HFK□BH** | **9BDG□-90FW+9WD□BL** | **9BDG□-90FWH+9WHD□** | **9BDG□-90FHC+9HC□□** |
| | | | |

## Connection Diagrams

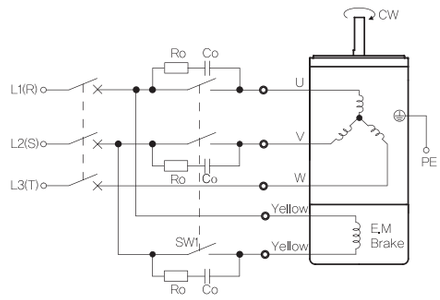
### Single Phase




*** Rotation Direction:**
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

### Three Phase




*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# 120W Brake Motor 120W(□ 90mm)

## Motor Specification

| Model<br>9BDG*-120F□ : Gear Type Shaft<br>9BDD*-120F: D-Cut Type Shaft<br>9BDK*-120F: Key Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9BDG1(A)-120F□ | 120 | 1ø 110 | 60 | 4 | 30min. | 7.11 | 0.711 | 1550 | 2.50 | 7.54 | 0.754 | 30.0 / 250 |
| 9BDG2(D)-120F□ | 120 | 1ø 220 | 60 | 4 | 30min. | 6.42 | 0.642 | 1600 | 1.08 | 7.31 | 0.731 | 6.5 / 450 |
| 9BDGE-120F□ | 120 | 1ø 220 | 50 | 4 | 30min. | 6.28 | 0.628 | 1250 | 1.10 | 9.35 | 0.935 | 6.5 / 450 |
| | | 1ø 240 | | | | 7.50 | 0.750 | | 1.21 | 9.35 | 0.935 | |
| 9BDG3(G)-120F□ | 120 | 3ø 220 | 50 | 4 | Cont. | 24.40 | 2.440 | 1300 | 0.88 | 8.99 | 0.899 | – |
| | | | 60 | | | 20.00 | 2.000 | 1600 | 0.71 | 7.31 | 0.731 | |
| | | 3ø 230 | 50 | 4 | Cont. | 27.00 | 2.700 | 1350 | 0.86 | 8.66 | 0.866 | |
| | | | 60 | | | 21.70 | 2.170 | 1600 | 0.76 | 7.31 | 0.731 | |
| 9BDG4(K)-120F□ | 120 | 3ø 380 | 50 | 4 | Cont. | 24.30 | 2.430 | 1300 | 0.50 | 8.99 | 0.899 | – |
| | | | 60 | | | 19.90 | 1.990 | 1600 | 0.41 | 7.31 | 0.731 | |
| | | 3ø 400 | 50 | 4 | Cont. | 27.10 | 2.710 | 1350 | 0.49 | 8.66 | 0.866 | |
| | | | 60 | | | 21.90 | 2.190 | 1600 | 0.43 | 7.31 | 0.731 | |
| 9BDG5(L)-120F□ | 120 | 3ø 415 | 50 | 4 | Cont. | 24.30 | 2.430 | 1300 | 0.47 | 8.99 | 0.899 | – |
| | | | 60 | | | 19.90 | 1.990 | 1600 | 0.37 | 7.31 | 0.731 | |
| | | 3ø 440 | 50 | 4 | Cont. | 27.50 | 2.750 | 1350 | 0.47 | 8.66 | 0.866 | |
| | | | 60 | | | 22.20 | 2.220 | 1600 | 0.40 | 7.31 | 0.731 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E, G, K, L contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 900 | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9BDG*-120FP | 9PBK□BH | kgfcm | 11.8 | 17.8 | 21.3 | 29.6 | 35.5 | 44.4 | 53.3 | 59.2 | 66.7 | 80.0 | 96.0 | 106.7 | 120.5 | 144.6 | 173.6 | 192.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.16 | 1.74 | 2.09 | 2.90 | 3.48 | 4.35 | 5.22 | 5.80 | 6.53 | 7.84 | 9.41 | 10.45 | 11.81 | 14.17 | 17.01 | 18.90 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG*-120FH | 9HBK□BH | kgfcm | – | 17.8 | 21.3 | 29.6 | 35.5 | 44.4 | 53.3 | 59.2 | 66.7 | 80.0 | 96.0 | 106.7 | 120.5 | 144.6 | 173.6 | 192.9 | 241.1 | 289.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 1.74 | 2.09 | 2.90 | 3.48 | 4.35 | 5.22 | 5.80 | 6.53 | 7.84 | 9.41 | 10.45 | 11.81 | 14.17 | 17.01 | 18.90 | 23.62 | 28.35 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 180 | 150 | 120 | 100 | 72 | 60 | 50 | 36 | 30 |
| 9BDG*-120FW | 9WD□BL/□ | kgfcm | 59.9 | 70.1 | 84.4 | 97.3 | 127.8 | 144.6 | 153.1 | 142.9 | 122.4 |
| | BR/□BRL | N.m | 5.87 | 6.87 | 8.27 | 9.54 | 12.53 | 14.17 | 15.00 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 |
| 9BDG*-120FWH | 9WHD□-030 | kgfcm | 25.4 | 36.8 | 47.3 | 66.6 | 84.2 | 96.4 | 112.2 | 137.9 | 157.8 | 163.3 | 132.7 |
| | | N.m | 2.49 | 3.61 | 4.64 | 6.53 | 8.25 | 9.45 | 11.00 | 13.52 | 15.46 | 16.00 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9BDG*-120FHC | 9HC□□ | kgfcm | 80 | 107 | 133 | 160 | 213 | 267 | 320 | 427 | 533 | 640 | 853 | 1067 | 1200 | 1280 |
| | | N.m | 7.84 | 10.5 | 13 | 15.7 | 20.9 | 26.2 | 31.4 | 41.8 | 52.2 | 62.7 | 83.6 | 105 | 118 | 125 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 2 | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 750 | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9BDG*-120FP | 9PBK□BH | kgfcm | 14.0 | 21.0 | 25.2 | 35.1 | 42.1 | 52.6 | 63.1 | 70.1 | 79.0 | 94.8 | 113.8 | 126.4 | 142.9 | 171.4 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
| | 9PFK□BH | N.m | 1.37 | 2.06 | 2.47 | 3.44 | 4.12 | 5.15 | 6.19 | 6.87 | 7.74 | 9.29 | 11.15 | 12.39 | 14.00 | 16.80 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG*-120FH | 9HBK□BH | kgfcm | – | 21.0 | 25.2 | 35.1 | 42.1 | 52.6 | 63.1 | 70.1 | 79.0 | 94.8 | 113.8 | 126.4 | 142.9 | 171.4 | 205.7 | 228.6 | 285.7 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | | 2.06 | 2.47 | 3.44 | 4.12 | 5.15 | 6.19 | 6.87 | 7.74 | 9.29 | 11.15 | 12.39 | 14.00 | 16.80 | 20.16 | 22.40 | 28.00 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 10 | 12 | 15 | 18 | 25 | 30 | 36 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 150 | 125 | 100 | 83 | 60 | 50 | 42 | 30 | 25 |
| 9BDG*-120FHC | 9WD□BL/□ | kgfcm | 71.0 | 83.1 | 100.0 | 115.3 | 151.5 | 170.0 | 153.1 | 142.9 | 122.4 |
| | BR/□BRL | N.m | 6.96 | 8.15 | 9.80 | 11.30 | 14.85 | 16.66 | 15.00 | 14.00 | 12.00 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 |
| 9BDG*-120FWH | 9WHD□-030 | kgfcm | 30.1 | 43.6 | 56.1 | 79.0 | 99.7 | 114.3 | 133.0 | 163.5 | 173.5 | 163.3 | 132.7 |
| | | N.m | 2.95 | 4.28 | 5.50 | 7.74 | 9.77 | 11.20 | 13.03 | 16.02 | 17.00 | 16.00 | 13.00 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9BDG*-120FHC | 9HC□□ | kgfcm | 94.8 | 126 | 158 | 190 | 253 | 316 | 379 | 506 | 632 | 758 | 1011 | 1264 | 1422 | 1517 |
| | | N.m | 9.29 | 12.3 | 15.5 | 18.6 | 24.8 | 31 | 37.1 | 49.6 | 61.9 | 74.3 | 99.1 | 124 | 139 | 149 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

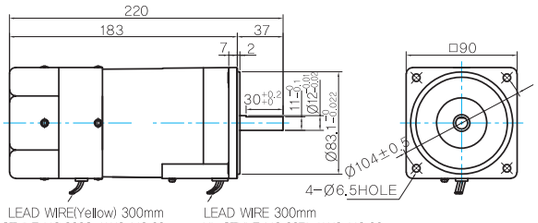
# B AC Motors

## Brake Motor 120W (□90mm)

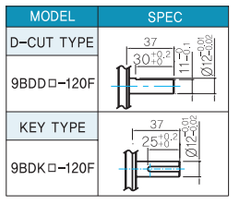
## Dimensions

### MOTOR ONLY

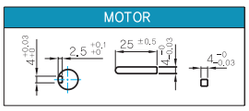
● MOTOR MODEL:
9BDD□-120F (GENERAL FAN)




● MOTOR OUTPUT SHAFT

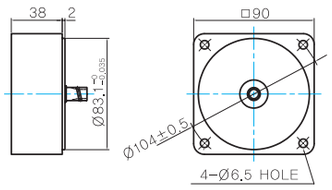
| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9BDD□-120F | |
| KEY TYPE | |
| 9BDK□-120F | |

● KEY SPEC

| MOTOR |
|---|
|  |

### INTER-DECIMAL GEARBOX

● MODEL:
9XD10□□



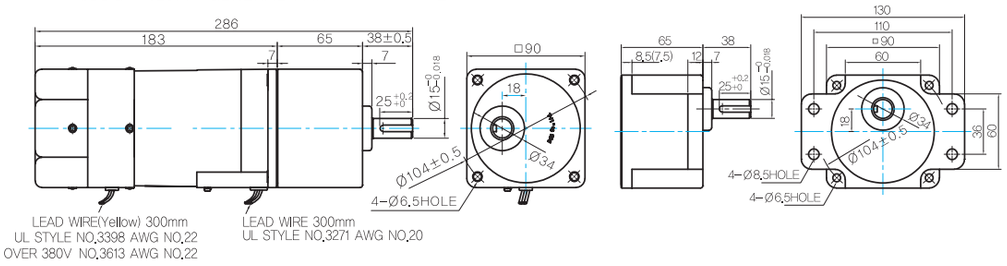

## GEARED MOTOR

### P TYPE GEARBOX

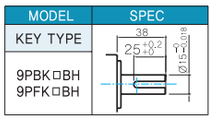
● MOTOR MODEL:
9BDG□-120FP (GENERAL FAN)

● GEARBOX MODEL:
9PBK□BH

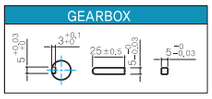
● GEARBOX MODEL:
9PFK□BH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9PBK□BH<br>9PFK□BH | |

● KEY SPEC

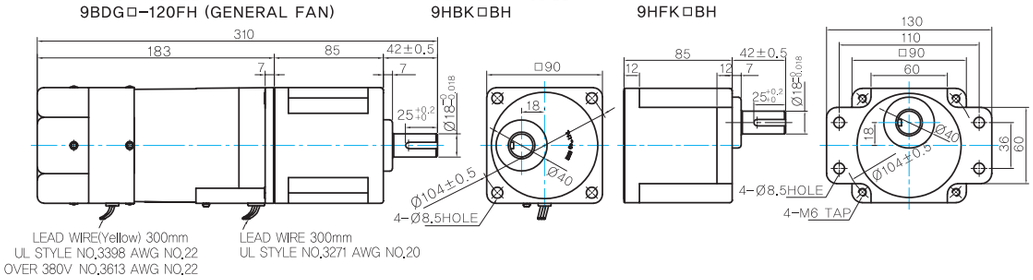
| GEARBOX |
|---|
|  |

### H TYPE GEARHEAD

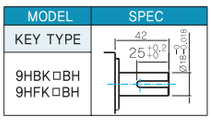
● MOTOR MODEL:
9BDG□-120FH (GENERAL FAN)

● GEARBOX MODEL:
9HBK□BH

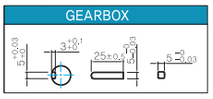
● GEARBOX MODEL:
9HFK□BH




● GEARBOX OUTPUT SHAFT

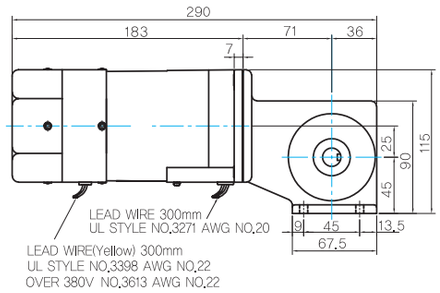
| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

● KEY SPEC

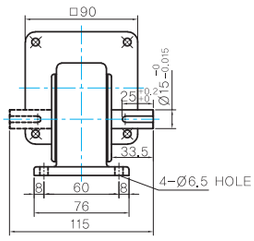
| GEARBOX |
|---|
|  |

### W TYPE GEARBOX

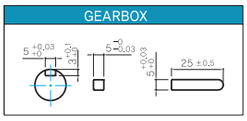
● MOTOR MODEL:
9BDG□-120FW (GENERAL FAN)




● GEARBOX MODEL:
9WD□BL/BR/BRL

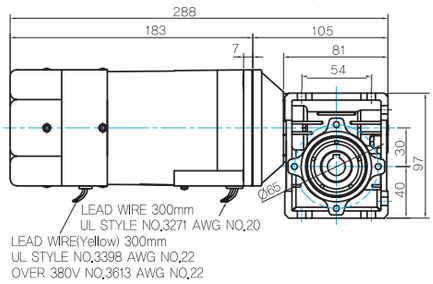



● KEY SPEC

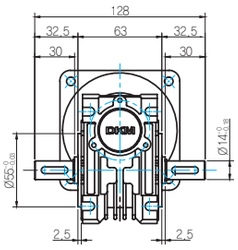
| GEARBOX |
|---|
|  |

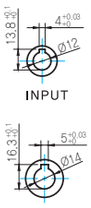
## WH TYPE GEARBOX

● MOTOR MODEL:
9BDG□-120FWH (GENERAL FAN)

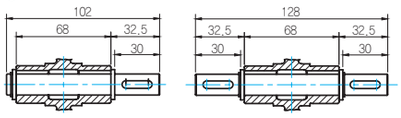



● GEARBOX MODEL:
9WHD□-030

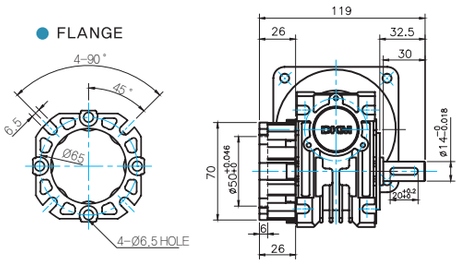


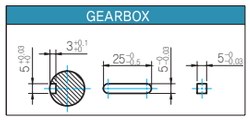

● SHAFT




● FLANGE

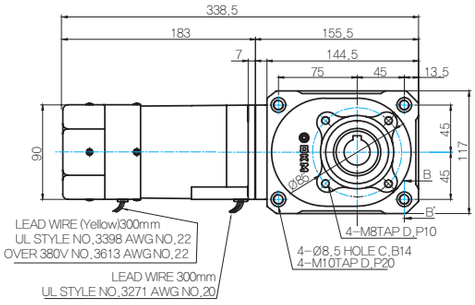



● KEY SPEC

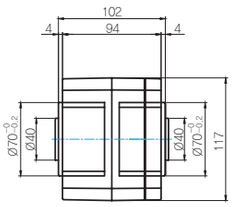



## HC TYPE GEARBOX

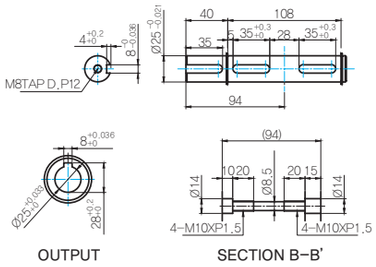
● MOTOR MODEL :
9BDG□-120FHC (GENERAL FAN)



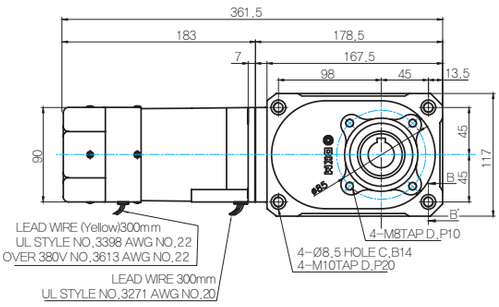

● GEARBOX MODEL:
9HC(15 ~ 60)□



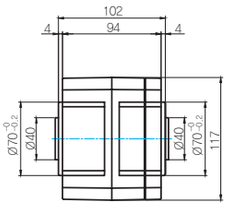

● SHAFT



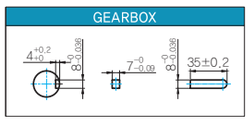

● MOTOR MODEL :
9BDG□-120FHC (GENERAL FAN)




● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9PB(F)K2BH - 9PB(F)K10BH | 1.28 |
| | 9PB(F)K12.5BH - 9PB(F)K20BH | 1.3 |
| | 9PB(F)K25BH - 9PB(F)K60BH | 1.45 |
| | 9PB(F)K75BH - 9PB(F)K200BH | 1.47 |
| | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WD□BL/BR/BRL | 1.0 |
| | 9WHD□-030 | 1.2 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

* The output flange and shaft are sold separately

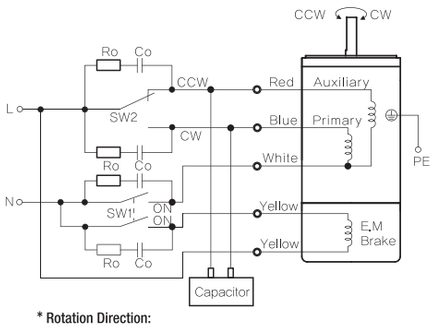
## Brake Motor 120W (□90mm)

## Motor Images

| 9BDD□-120F | 9BDG□-120FP+9PBK□BH | 9BDG□-120FP+9PFK□BH | 9BDG□-120FH+9HBK□BH |
|---|---|---|---|
| | | | |
| **9BDG□-120FH+9HFK□BH** | **9BDG□-120FW+9WD□BL** | **9BDG□-120FWH+9WHD□** | **9BDG□-120FHC+9HC□□** |
| | | | |

## Connection Diagrams

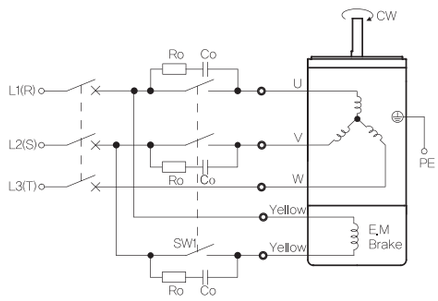
### Single Phase




*** Rotation Direction:**
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

### Three Phase




*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

# 150W Brake Motor 150W(□ 90mm)

## Motor Specification

| Model<br>9BDG*-150F□ : Gear Type Shaft<br>9BDD*-150F: D-Cut Type Shaft<br>9BDK*-150F: Key Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9BDG3(G)-150F□ | 150 | 3ø220 | 50 | 4 | Cont. | 25.70 | 2.570 | 1300 | 0.94 | 11.24 | 1.124 | – |
| | | | 60 | | | 20.50 | 2.050 | 1550 | 0.84 | 9.43 | 0.943 | |
| | | 3ø230 | 50 | 4 | Cont. | 27.50 | 2.750 | 1300 | 1.02 | 11.24 | 1.124 | |
| | | | 60 | | | 22.20 | 2.220 | 1550 | 0.89 | 9.43 | 0.943 | |
| 9BDG4(K)-150F□ | 150 | 3ø380 | 50 | 4 | Cont. | 25.10 | 2.510 | 1300 | 0.53 | 11.24 | 1.124 | – |
| | | | 60 | | | 20.00 | 2.000 | 1550 | 0.48 | 9.43 | 0.943 | |
| | | 3ø400 | 50 | 4 | Cont. | 27.30 | 2.730 | 1300 | 0.57 | 11.24 | 1.124 | |
| | | | 60 | | | 22.00 | 2.200 | 1550 | 0.50 | 9.43 | 0.943 | |
| 9BDG5(L)-150F□ | 150 | 3ø415 | 50 | 4 | Cont. | 25.00 | 2.500 | 1300 | 0.51 | 11.24 | 1.124 | – |
| | | | 60 | | | 22.10 | 2.210 | 1550 | 0.45 | 9.43 | 0.943 | |
| | | 3ø440 | 50 | 4 | Cont. | 27.20 | 2.720 | 1300 | 0.55 | 11.24 | 1.124 | |
| | | | 60 | | | 22.40 | 2.240 | 1550 | 0.48 | 9.43 | 0.943 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9BDG*-150FH | 9HBK□BH | kgfcm | 22.9 | 27.5 | 38.2 | 45.8 | 57.3 | 68.7 | 76.3 | 86.0 | 103.2 | 123.9 | 137.6 | 155.5 | 186.6 | 224.0 | 248.8 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.24 | 2.69 | 3.74 | 4.49 | 5.61 | 6.73 | 7.48 | 8.43 | 10.11 | 12.14 | 13.49 | 15.24 | 18.29 | 21.95 | 24.39 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9BDG*-150FWH | 9WHD□-030 | kgfcm | 32.8 | 47.5 | 61.1 | 86.0 | 108.6 | 124.4 | 144.8 | 178.0 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 3.21 | 4.66 | 5.99 | 8.42 | 10.64 | 12.19 | 14.19 | 17.44 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 230.0 | 257.9 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 22.54 | 25.27 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9BDG*-150FHC | 9HC□□ | kgfcm | 103 | 138 | 172 | 206 | 275 | 344 | 413 | 550 | 688 | 826 | 1101 | 1376 | 1548 | 1651 |
| | | N.m | 10.1 | 13.5 | 16.9 | 20.2 | 27 | 33.7 | 40.5 | 53.9 | 67.4 | 80.9 | 108 | 135 | 152 | 162 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9BDG*-150FH | 9HBK□BH | kgfcm | 27.3 | 32.8 | 45.5 | 54.6 | 68.3 | 81.9 | 91.0 | 102.6 | 123.1 | 147.7 | 164.1 | 185.4 | 222.5 | 267.0 | 296.7 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.68 | 3.21 | 4.46 | 5.35 | 6.69 | 8.03 | 8.92 | 10.05 | 12.06 | 14.47 | 16.08 | 18.17 | 21.81 | 26.17 | 29.08 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 | 15 |
| 9BDG*-150FWH | 9WHD□-030 | kgfcm | 39.1 | 56.6 | 72.8 | 102.5 | 129.5 | 148.3 | 172.6 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 3.83 | 5.55 | 7.14 | 10.04 | 12.69 | 14.54 | 16.92 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 274.2 | 307.5 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 26.87 | 30.13 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9BDG*-150FHC | 9HC□□ | kgfcm | 123 | 164 | 205 | 246 | 328 | 410 | 492 | 656 | 820 | 984 | 1313 | 1641 | 1800 | 1800 |
| | | N.m | 12.1 | 16.1 | 20.1 | 24.1 | 32.1 | 40.2 | 48.2 | 64.3 | 80.4 | 96.4 | 129 | 161 | 176 | 176 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

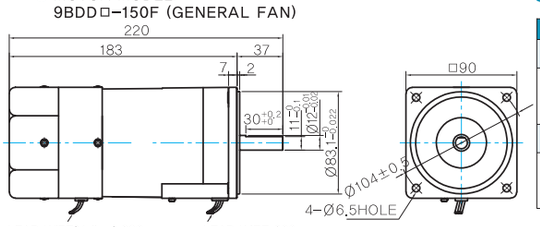
# B AC Motors

## Brake Motor 150W (□90mm)

## Dimensions

### MOTOR ONLY

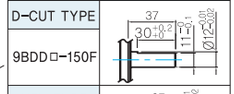
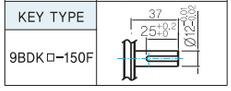
● MOTOR MODEL:
9BDD□-150F (GENERAL FAN)




LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

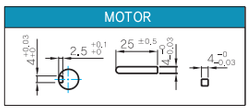
LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9BDD□-150F | |
| KEY TYPE |  |
| 9BDK□-150F | |

● KEY SPEC

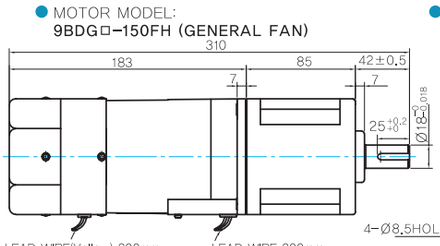
MOTOR



### GEARED MOTOR

### H TYPE GEARBOX

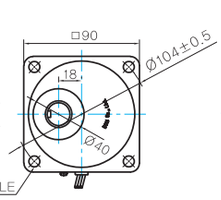
● MOTOR MODEL:
9BDG□-150FH (GENERAL FAN)



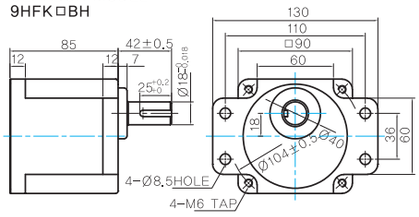

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3398 AWG NO.22

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

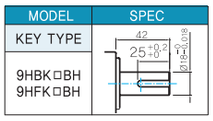
● GEARBOX MODEL:
9HBK□BH




● GEARBOX MODEL:
9HFK□BH

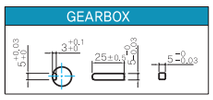



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

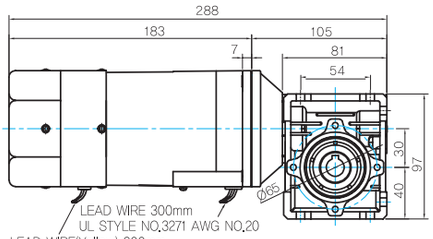
● KEY SPEC

GEARBOX



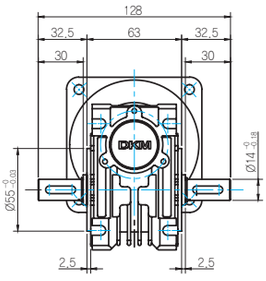
### WH TYPE GEARBOX

● MOTOR MODEL:
9BDG□-150FWH (GENERAL FAN)

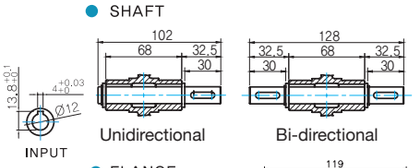



LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20
LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

● GEARBOX MODEL:
9WHD□-030



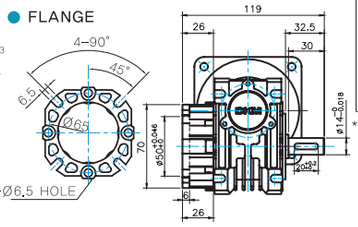

● SHAFT




Unidirectional

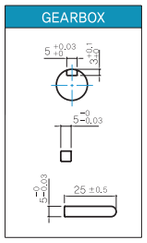
Bi-directional

● FLANGE



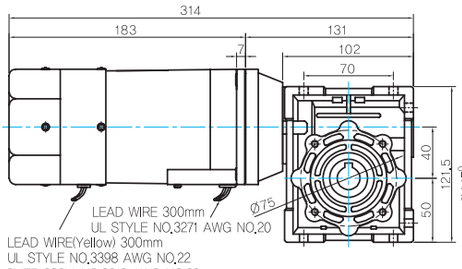

● KEY SPEC

GEARBOX



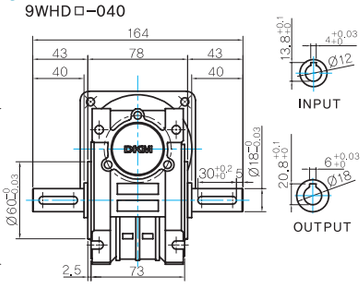
* The output flange and shaft are sold separately

● MOTOR MODEL:
9BDG□-150FWH (GENERAL FAN)

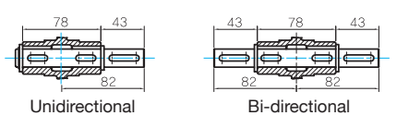



LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20
LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

● GEARBOX MODEL:
9WHD□-040



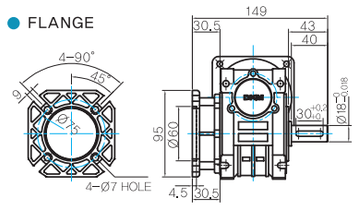

● SHAFT




Unidirectional

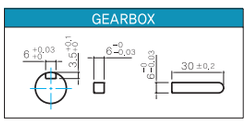
Bi-directional

● FLANGE



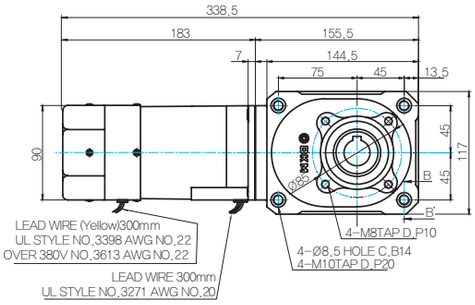

● KEY SPEC

GEARBOX

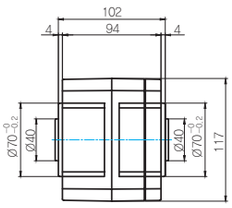


## HC TYPE GEARBOX

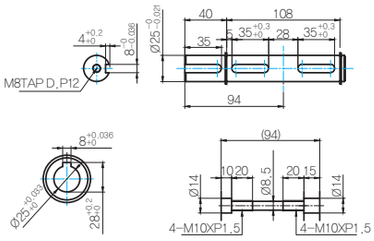
● MOTOR MODEL :
9BDG□-150FHC (GENERAL FAN)



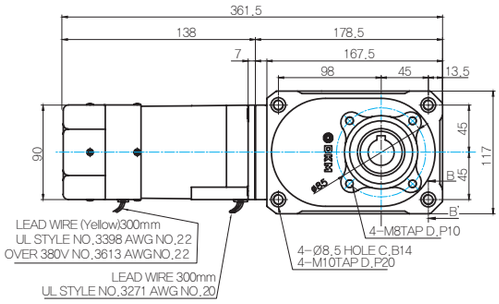

● GEARBOX MODEL:
9HC(15 ~ 60)□



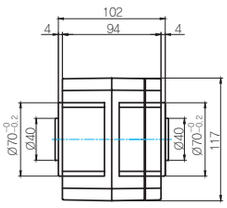

● SHAFT



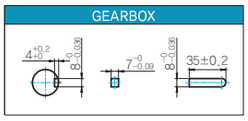

● MOTOR MODEL :
9BDG□-150FHC (GENERAL FAN)




● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR BOX | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WHD□-030 | 1.2 |
| | 9WHD□-040 | 2.1 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

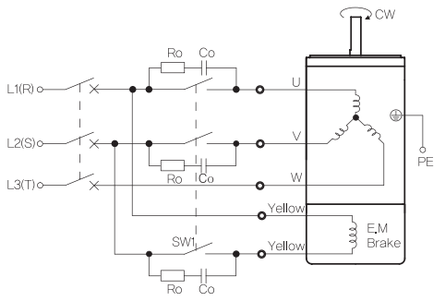
* The output flange and shaft are sold separately

## Motor Images

| 9BDD□-150F | 9BDG□-150FH+9HBK□BH | 9BDG□-150FH+9HFK□BH | 9BDG□-150FWH+9WHD□ | 9BDG□-150FHC+9HC□□ |
|---|---|---|---|---|
| | | | | |

## Connection Diagrams

### Three Phase




1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

# 180W Brake Motor 180W(□90mm)

## Motor Specification

| Model<br>9BDG*-180F□: Gear Type Shaft<br>9BDD*-180F: D-Cut Type Shaft<br>9BDK*-180F: Key Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9BDG1(A)-180F□ | 180 | 1ø110 | 60 | 4 | 30min. | 7.40 | 0.740 | 1600 | 3.00 | 10.96 | 1.096 | 30.0 / 250 |
| 9BDG2(D)-180F□ | 180 | 1ø220 | 60 | 4 | 30min. | 7.40 | 0.740 | 1600 | 1.50 | 10.96 | 1.096 | 8.0 / 450 |
| 9BDGE-180F□ | 180 | 1ø220 | 50 | 4 | 30min. | 7.00 | 0.700 | 1250 | 1.50 | 14.03 | 1.403 | 8.0 / 450 |
| | | 1ø240 | | | | 7.80 | 0.780 | 1300 | 1.60 | 13.49 | 1.349 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code A, D, E contain a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9BDG*-180FH | 9HBK□BH | kgfcm | 26.6 | 32.0 | 44.4 | 53.3 | 66.6 | 79.9 | 88.8 | 100.0 | 120.0 | 144.0 | 160.0 | 180.8 | 217.0 | 260.4 | 289.3 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.61 | 3.13 | 4.35 | 5.22 | 6.52 | 7.83 | 8.70 | 9.80 | 11.76 | 14.11 | 15.68 | 17.72 | 21.26 | 25.51 | 28.35 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9BDG*-180FWH | 9WHD□-030 | kgfcm | 38.1 | 55.2 | 71.0 | 99.9 | 126.2 | 144.6 | 168.3 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 3.74 | 5.41 | 6.96 | 9.79 | 12.37 | 14.17 | 16.49 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 267.4 | 299.8 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 26.20 | 29.38 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9BDG*-180FHC | 9HC□□ | kgfcm | 120 | 160 | 200 | 240 | 320 | 400 | 480 | 640 | 800 | 960 | 1280 | 1600 | 1800 | 1800 |
| | | N.m | 11.8 | 15.7 | 19.6 | 23.5 | 31.4 | 39.2 | 47 | 62.7 | 78.4 | 94.1 | 125 | 157 | 176 | 176 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9BDG*-180FH | 9HBK□BH | kgfcm | 32.8 | 39.3 | 54.6 | 65.5 | 81.9 | 98.3 | 109.2 | 123.1 | 147.7 | 177.2 | 196.9 | 222.5 | 267.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 3.21 | 3.85 | 5.35 | 6.42 | 8.03 | 9.63 | 10.71 | 12.06 | 14.47 | 17.37 | 19.30 | 21.81 | 26.17 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 | 15 |
| 9BDG*-180FWH | 9WHD□-030 | kgfcm | 46.9 | 68.0 | 87.4 | 123.0 | 155.4 | 178.0 | 204.1 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 4.60 | 6.66 | 8.56 | 12.05 | 15.23 | 17.45 | 20.00 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 329.1 | 330.0 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 32.25 | 32.34 | 28.91 | 26.46 |

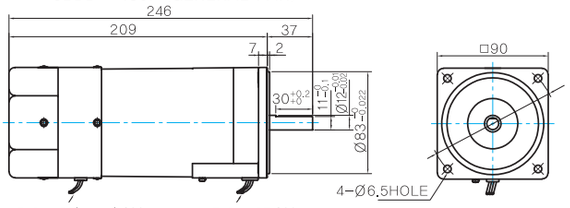
| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9BDG*-180FHC | 9HC□□ | kgfcm | 148 | 197 | 246 | 295 | 394 | 492 | 591 | 788 | 984 | 1181 | 1575 | 1800 | 1800 | 1800 |
| | | N.m | 14.5 | 19.3 | 24.1 | 28.9 | 38.6 | 48.2 | 57.9 | 77.2 | 96.4 | 116 | 154 | 176 | 176 | 176 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

# Dimensions

## MOTOR ONLY

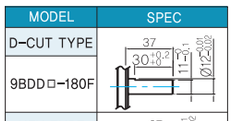
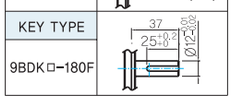
● MOTOR MODEL:
9BDD□-180F (GENERAL FAN)




LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

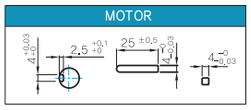
LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9BDD□-180F | |
| KEY TYPE |  |
| 9BDK□-180F | |

● KEY SPEC

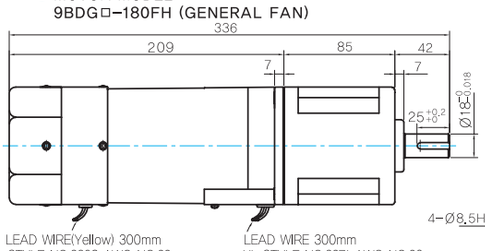
MOTOR



## GEARED MOTOR

## H TYPE GEARBOX

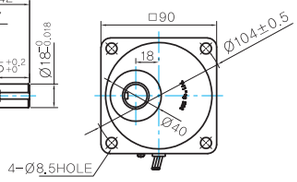
● MOTOR MODEL:
9BDG□-180FH (GENERAL FAN)



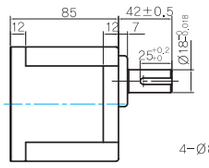

LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

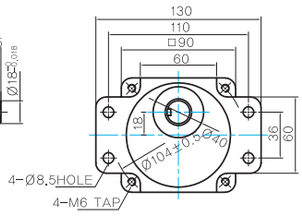
LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20

● GEARBOX MODEL:
9HBK□BH

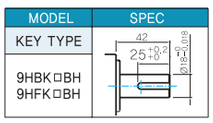



● GEARBOX MODEL:
9HFK□BH



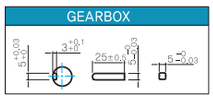




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

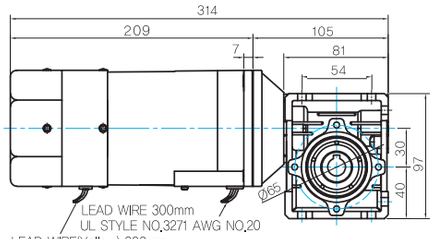
● KEY SPEC

GEARBOX



## WH TYPE GEARBOX

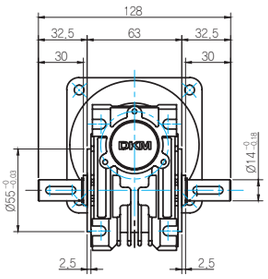
● MOTOR MODEL:
9BDG□-180FWH (GENERAL FAN)



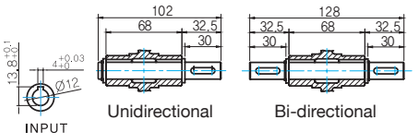

LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20
LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

● KEY SPEC

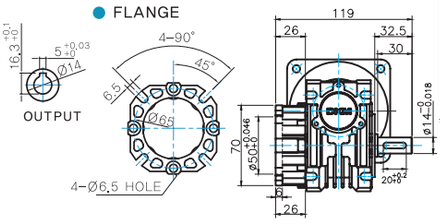
● GEARBOX MODEL:
9WHD□-030




● SHAFT

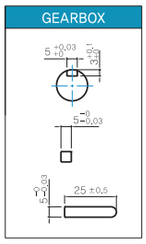



● FLANGE



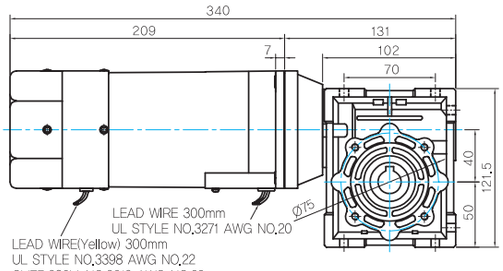

● KEY SPEC

GEARBOX



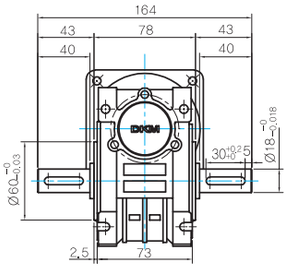
* The output flange and shaft are sold separately

● MOTOR MODEL:
9BDG□-180FWH (GENERAL FAN)

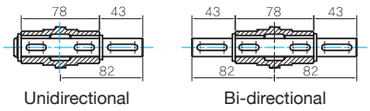



LEAD WIRE 300mm
UL STYLE NO.3271 AWG NO.20
LEAD WIRE(Yellow) 300mm
UL STYLE NO.3398 AWG NO.22
OVER 380V NO.3613 AWG NO.22

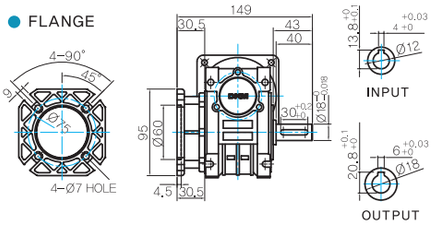
● GEARBOX MODEL:
9WHD□-040




● SHAFT

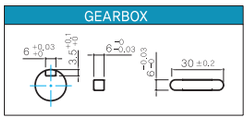



● FLANGE




● KEY SPEC

GEARBOX

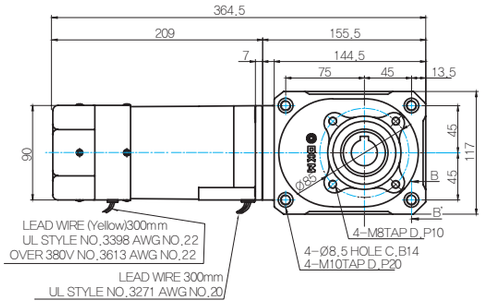


# B AC Motors

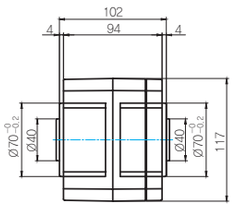
## Brake Motor 180W (□90mm)

### HC TYPE GEARBOX

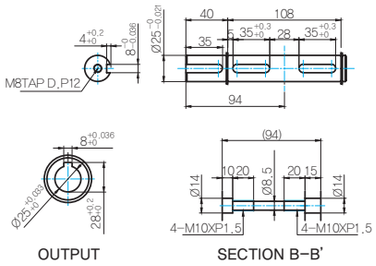
● MOTOR MODEL :
9BDG□-180FHC (GENERAL FA N)



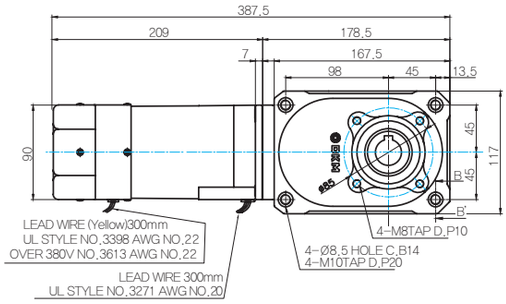

● GEARBOX MODEL:
9HC(15 ~ 60)□



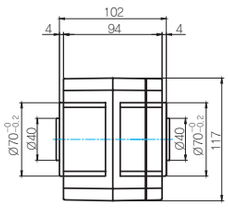

● SHAFT




● MOTOR MODEL :
9BDG□-180FHC (GENERAL FA N)

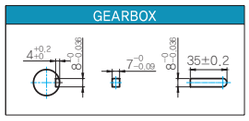



● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC

GEARBOX




### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 4.4 |
| GEAR BOX | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WHD□-030 | 1.2 |
| | 9WHD□-040 | 2.1 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

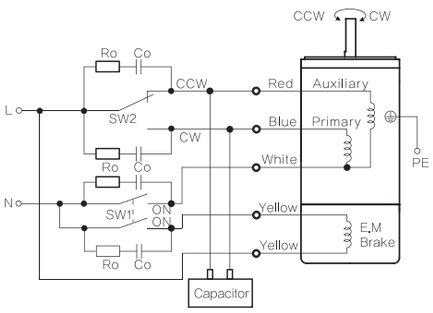
* The output flange and shaft are sold separately

## Motor Images

| 9BDD□-180F | 9BDG□-180FH+9HBK□BH | 9BDG□-180FH+9HFK□BH | 9BDG□-180FWH+9WHD□ | 9BDG□-180FHC+9HC□□ |
|---|---|---|---|---|
| | | | | |

## Connection Diagrams

### Three Phase




1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2㎌, 200WV (400WV)]

*** Rotation Direction:**
To rotate the motor in a clockwise (CW) direction, turn SW2 to CW.
To rotate the motor in a counterclockwise (CCW) direction, turn SW2 to CCW.

| Switch No. | Specifications | | Note |
|---|---|---|---|
| | Single Phase 110V/115V Input | Single Phase 220V/230V Input | |
| SW1 | AC 125V 3A minimum (Inductive load) | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |
| SW2 | | | – |

# 200W Brake Motor 200W(□90mm)

## Motor Specification

| Model<br>9BDG*-200F□ : Gear Type Shaft<br>9BDD*-200F: D-Cut Type Shaft<br>9BDK*-200F: Key Type Shaft<br>Lead Wire Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9BDG3(G)-200F□ | 200 | 3ø 220 | 50 | 4 | Cont. | 36.10 | 3.610 | 1300 | 1.27 | 14.98 | 1.498 | – |
| | | | 60 | | | 30.10 | 3.010 | 1550 | 1.17 | 12.57 | 1.257 | |
| | | 3ø 230 | 50 | 4 | Cont. | 39.70 | 3.970 | 1300 | 1.33 | 14.98 | 1.498 | |
| | | | 60 | | | 32.60 | 3.260 | 1550 | 1.21 | 12.57 | 1.257 | |
| 9BDG4(K)-200F□ | 200 | 3ø 380 | 50 | 4 | Cont. | 39.70 | 3.970 | 1300 | 0.74 | 14.98 | 1.498 | – |
| | | | 60 | | | 31.10 | 3.110 | 1550 | 0.67 | 12.57 | 1.257 | |
| | | 3ø 400 | 50 | 4 | Cont. | 41.20 | 4.120 | 1300 | 0.81 | 14.98 | 1.498 | |
| | | | 60 | | | 35.10 | 3.510 | 1550 | 0.70 | 12.57 | 1.257 | |
| 9BDG5(L)-200F□ | 200 | 3ø 415 | 50 | 4 | Cont. | 38.40 | 3.840 | 1300 | 0.70 | 14.98 | 1.498 | – |
| | | | 60 | | | 31.10 | 3.110 | 1550 | 0.62 | 12.57 | 1.257 | |
| | | 3ø 440 | 50 | 4 | Cont. | 42.00 | 4.200 | 1300 | 0.76 | 14.98 | 1.498 | |
| | | | 60 | | | 34.60 | 3.460 | 1550 | 0.66 | 12.57 | 1.257 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code G, K, L contain a built-in thermal protector. 3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| 9BDG*-200FH | 9HBK□BH | kgfcm | 30.5 | 36.6 | 50.9 | 61.1 | 76.3 | 91.6 | 101.8 | 114.7 | 137.6 | 165.1 | 183.5 | 207.4 | 248.8 | 298.6 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 2.99 | 3.59 | 4.99 | 5.99 | 7.48 | 8.98 | 9.98 | 11.24 | 13.49 | 16.18 | 17.98 | 20.32 | 24.39 | 29.26 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22 | 18 |
| 9BDG*-200FWH | 9WHD□-030 | kgfcm | 43.7 | 63.3 | 81.4 | 114.6 | 144.8 | 165.9 | 193.0 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 4.29 | 6.21 | 7.98 | 11.23 | 14.19 | 16.26 | 18.92 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 306.7 | 330.0 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 30.05 | 32.34 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 9BDG*-200FHC | 9HC□□ | kgfcm | 138 | 183 | 229 | 275 | 367 | 459 | 550 | 734 | 917 | 1101 | 1468 | 1800 | 1800 | 1800 |
| | | N.m | 13.5 | 17.9 | 22.4 | 27 | 36 | 45 | 53.9 | 71.9 | 89.9 | 108 | 144 | 176 | 176 | 176 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 417 | 300 | 250 | 200 | 167 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 42 | 37.5 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8 | 7.5 |
| 9BDG*-200FH | 9HBK□BH | kgfcm | 36.4 | 43.7 | 60.7 | 72.8 | 91.0 | 109.2 | 121.4 | 136.7 | 164.1 | 196.9 | 218.8 | 247.2 | 296.7 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |
| | 9HFK□BH | N.m | 3.57 | 4.28 | 5.95 | 7.14 | 8.92 | 10.71 | 11.89 | 13.40 | 16.08 | 19.30 | 21.44 | 24.23 | 29.08 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 | 30 | 25 | 18 | 15 |
| 9BDG*-200FWH | 9WHD□-030 | kgfcm | 52.1 | 75.5 | 97.1 | 136.7 | 172.6 | 183.7 | 204.1 | 183.7 | 173.5 | 163.3 | 132.7 | – |
| | | N.m | 5.11 | 7.40 | 9.52 | 13.39 | 16.92 | 18.00 | 20.00 | 18.00 | 17.00 | 16.00 | 13.00 | – |
| | 9WHD□-040 | kgfcm | – | – | – | – | – | – | – | – | 350.0 | 330.0 | 295.0 | 270.0 |
| | | N.m | – | – | – | – | – | – | – | – | 34.30 | 32.34 | 28.91 | 26.46 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 9BDG*-200FHC | 9HC□□ | kgfcm | 164 | 219 | 273 | 328 | 438 | 547 | 656 | 875 | 1094 | 1313 | 1750 | 1800 | 1800 | 1800 |
| | | N.m | 16.1 | 21.5 | 26.8 | 32.1 | 42.9 | 53.6 | 64.3 | 85.8 | 107 | 129 | 172 | 176 | 176 | 176 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

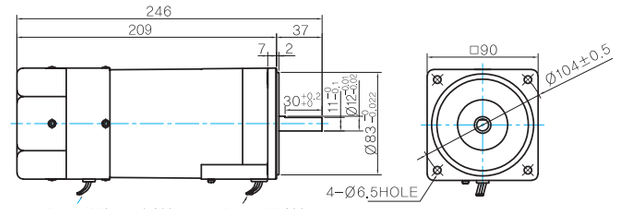
# B AC Motors

## Brake Motor 200W (□90mm)

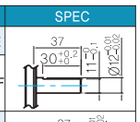
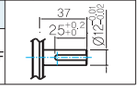
## Dimensions

### MOTOR ONLY

● MOTOR MODEL:
9BDD□-200F (GENERAL FAN)

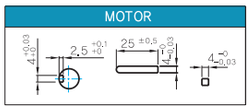



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| 9BDD□-200F | |
| KEY TYPE |  |
| 9BDK□-200F | |

● KEY SPEC

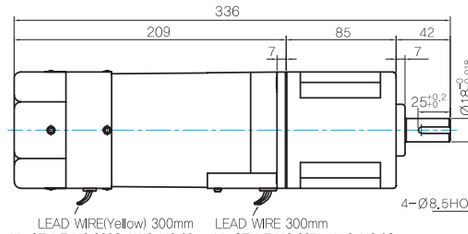
MOTOR



### GEARED MOTOR

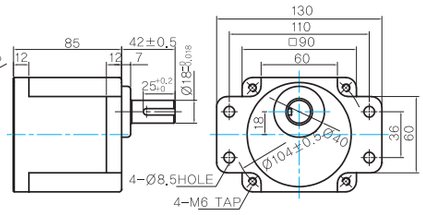
### H TYPE GEARBOX

● MOTOR MODEL:
9BDG□-200FH (GENERAL FAN)

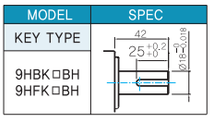



● GEARBOX MODEL:
9HBK□BH

● GEARBOX MODEL:
9HFK□BH

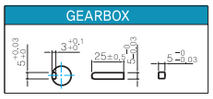



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |
| 9HBK□BH<br>9HFK□BH | |

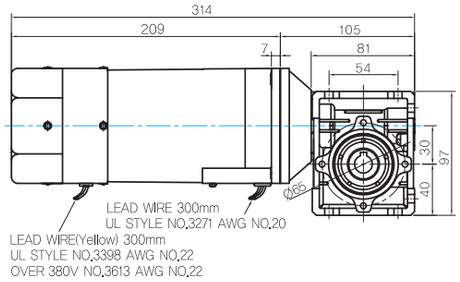
● KEY SPEC

GEARBOX

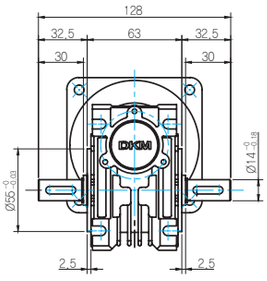


### WH TYPE GEARBOX

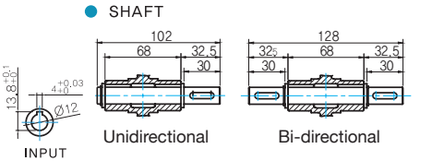
● MOTOR MODEL:
9BDG□-200FWH (GENERAL FAN)



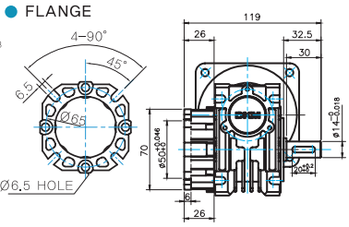

● GEARBOX MODEL:
9WHD□-030




● SHAFT

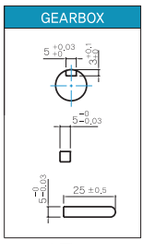



● FLANGE



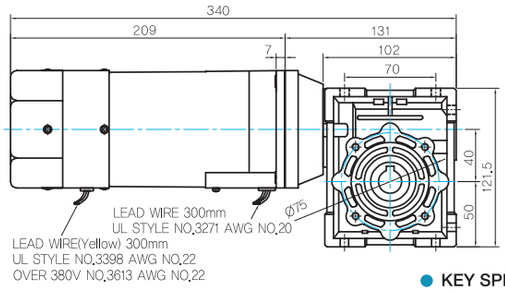

● KEY SPEC

GEARBOX

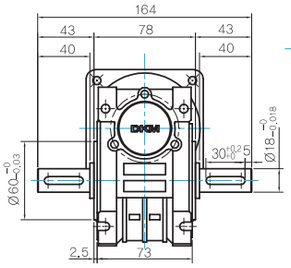


* The output flange and shaft are sold separately

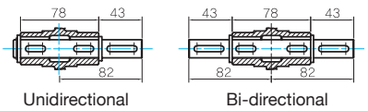
● MOTOR MODEL:
9BDG□-200FWH (GENERAL FAN)



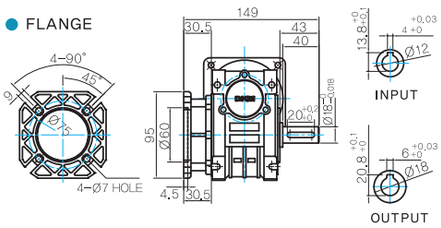

● GEARBOX MODEL:
9WHD□-040




● SHAFT

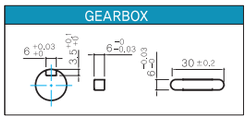



● FLANGE



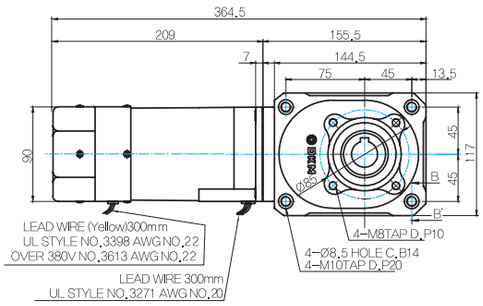

● KEY SPEC

GEARBOX

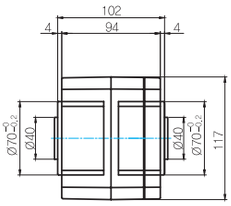


## HC TYPE GEARBOX

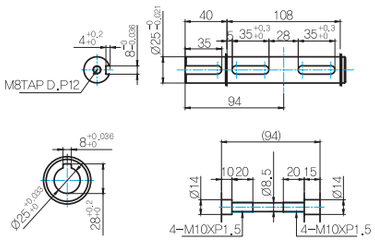
● MOTOR MODEL :
9BDG□-200FHC (GENERAL FAN)



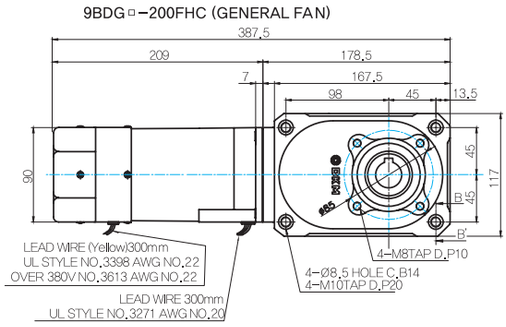

● GEARBOX MODEL:
9HC(15 ~ 60)□



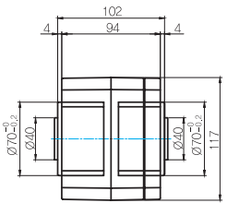

● SHAFT




● MOTOR MODEL :
9BDG□-200FHC (GENERAL FAN)

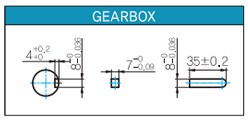



● GEARBOX MODEL :
9HC(80 ~ 240)□




● KEY SPEC

GEARBOX




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 4.4 |
| GEAR BOX | 9HB(F)K3BH - 9HB(F)K10BH | 1.62 |
| | 9HB(F)K12.5BH - 9HB(F)K20BH | 1.68 |
| | 9HB(F)K25BH - 9HB(F)K60BH | 1.73 |
| | 9HB(F)K75BH - 9HB(F)K200BH | 1.78 |
| | 9WHD□-030 | 1.2 |
| | 9WHD□-040 | 2.1 |
| | 9HC15□ | 4.05 |
| | 9HC20□~9HC60□ | 4.1 |
| | 9HC80□~9HC240□ | 4.75 |
| | 9XD10□□ | 0.6 |

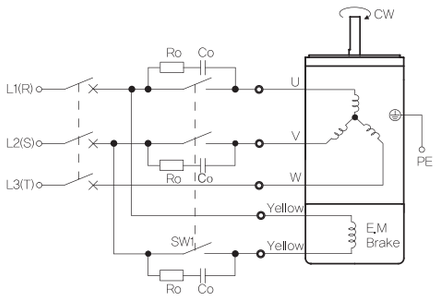
* The output flange and shaft are sold separately

## Motor Images

| 9BDD□-200F | 9BDG□-200FH+9HBK□BH | 9BDG□-200FH+9HFK□BH | 9BDG□-200FWH+9WHD□ | 9BDG□-200FHC+9HC□□ |
|---|---|---|---|---|
| | | | | |

## Connection Diagrams

### Three Phase




1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) SW1 operates both motor and electromagnetic brake action.
4) The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON. When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.
5) If you wish to release the brake while the motor is stopped, apply voltage between the two brake lead wires (yellow).
6) Ro and Co indicate CR circuit for surge suppression. [Ro=5~200Ω, Co=0.1~0.2μF, 200WV (400WV)]

*** CCW Direction:**
Change any two connections between R, S and T.

| Switch No. | Specifications | Note |
|---|---|---|
| SW1 | AC 250V 1.5A minimum (Inductive load) | Switched Simultaneously |

# 250W Brake Motor 250W(□104mm)

## Motor Specification

| Model<br>10BDGE-250F□-T: Gear Type Shaft<br>10BDDE-250F-T: D-Cut Type Shaft<br>10BDKE-250F-T: Key Type Shaft<br>Terminal Box Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10BDKE-250F□-T | 250 | 1ø220 | 50 | 4 | 30min. | 11.00 | 1.100 | 1250 | 2.29 | 19.48 | 1.948 | 13.0 / 450 |
| | | 1ø240 | | | | 13.50 | 1.350 | 1300 | 2.17 | 18.74 | 1.874 | |

1) Enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code E contains a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

## Max. Permissible Torque at Output Shaft of Gearbox

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 300 | 167 | 150 | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 16.7 | 15 | 12.5 | 10 | 8.3 |
| 10BDGE-250FU-T | 10UBK□BH | kgfcm | 50.0 | 80.0 | 145.0 | 150.0 | 220.0 | 270.0 | 335.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 4.90 | 7.84 | 14.21 | 14.70 | 21.56 | 26.46 | 32.83 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 38 |
| 10BDKE-250F-T | 10WHD□-040 | kgfcm | 70.0 | 100.0 | 130.0 | 185.0 | 240.0 | 290.0 | 325.0 | 305.0 |
| | | N.m | 6.86 | 9.80 | 12.74 | 18.13 | 23.52 | 28.42 | 31.85 | 29.89 |

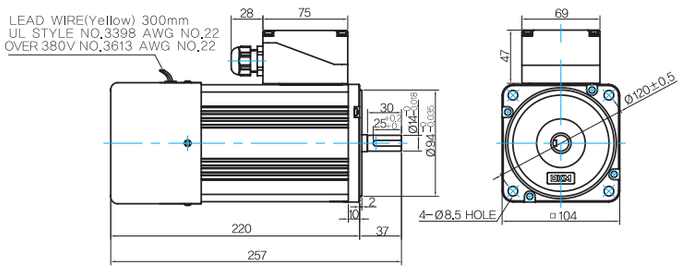
| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 10BDGE-250FHC-T | 10HC□□ | kgfcm | 213 | 284 | 356 | 427 | 569 | 711 | 853 | 1138 | 1422 | 1706 | 2275 | 2844 | 3000 | 3000 |
| | | N.m | 20.9 | 27.8 | 34.9 | 41.8 | 55.8 | 69.7 | 83.6 | 112 | 139 | 167 | 223 | 279 | 294 | 294 |

1) Enter the gear ratio in the box (□) within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

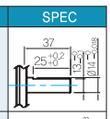
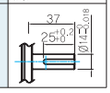
## Dimensions

### MOTOR ONLY

● MOTOR MODEL:
10BDKE-250F-T

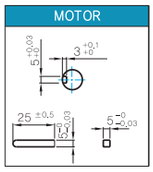



● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| KEY TYPE |  |

● KEY SPEC

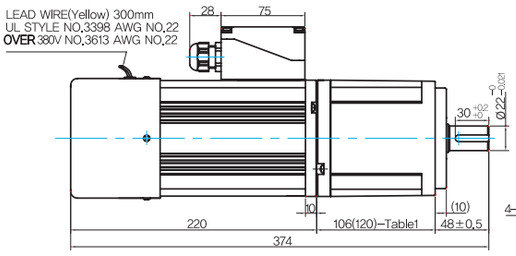
MOTOR



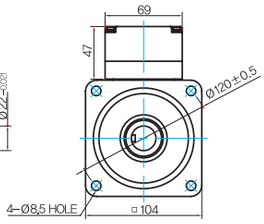
## GEARED MOTOR

### U TYPE GEARBOX

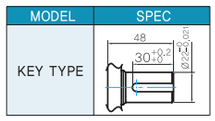
- MOTOR MODEL:
  10BDGE-250FU-T




- GEARBOX MODEL:
  10UBK□BH

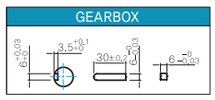



- GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

- KEY SPEC

GEARBOX

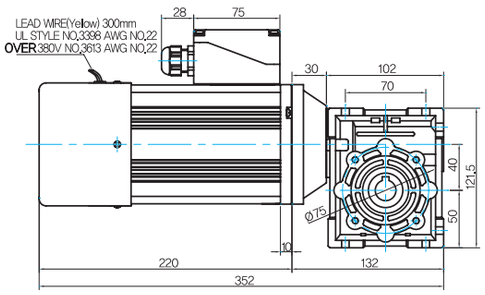


- 106(120)-Table1

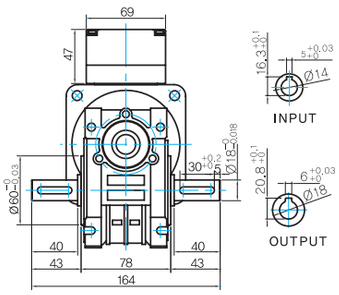
| SIZE(mm) | GEAR RATIO |
|---|---|
| 106 | 10UBK3BH – 10UBK60BH |
| 120 | 10UBK90BH – 10UBK180BH |

### WH TYPE GEARBOX

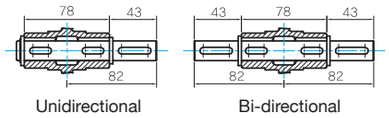
- MOTOR MODEL:
  10BDKE-250F-T



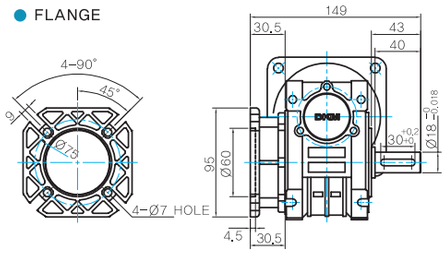

- GEARBOX MODEL:
  10WHD□-040




- SHAFT

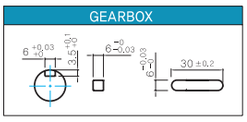



- FLANGE



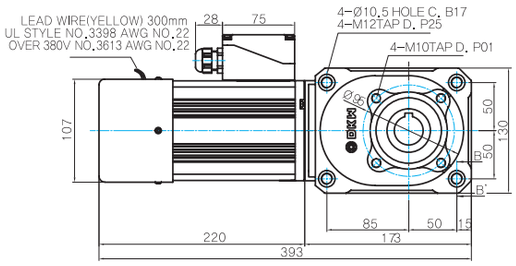

- KEY SPEC

GEARBOX

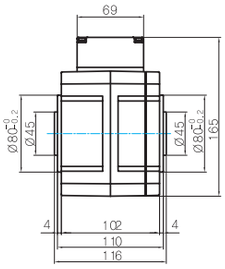


### HC TYPE GEARBOX

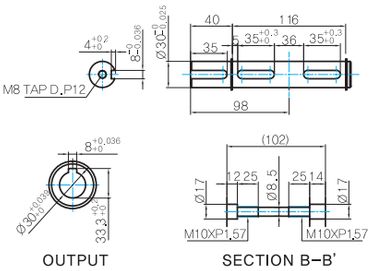
- GEARBOX MODEL :
  10BDGE-250FHC-T (GENERAL FAN)




- GEARBOX MODEL :
  10HC(15 ~ 60)□



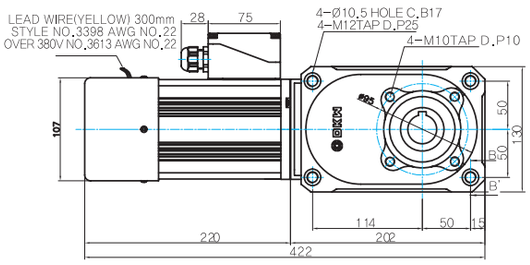

- SHAFT



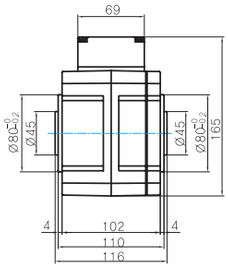
# B AC Motors

## Brake Motor 250W (□104mm)

● GEARBOX MODEL :
10BDGE-250FHC-T (GENERAL FAN)

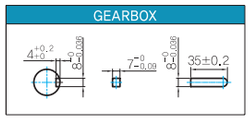



● GEARBOX MODEL :
10HC(80 ~ 240)□




● KEY SPEC

GEARBOX




### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 7.1 |
| GEAR BOX | 10UBK3BH ~ 10UBK9BH | 2.0 |
| | 10UBK10BH ~ 10UBK15BH | 2.15 |
| | 10UBK20BH ~ 10UBK60BH | 2.3 |
| | 10UBK90BH ~ 10UBK180BH | 2.5 |
| | 10WHD□-040 | 2.2 |
| | 10HC15□ | 5.5 |
| | 10HC20□ ~ 10HC60□ | 5.6 |
| | 10HC80□ ~ 10HC240□ | 6.4 |

* The output flange and shaft are sold separately

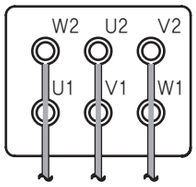
## Motor Images

| 10BDKE-250F-T | 10BDGE-250FU-T + 10UBK□BH | 10BDKE-250F-T + 10WHD□-040 | 10BDG□-250FHC-T+10HC□□ |
|---|---|---|---|
| | | | |

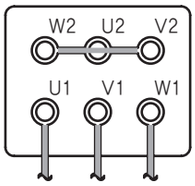
## Connection Diagrams

### Terminal Box

1ø 220~240V
3ø 220V, 230V, 440V

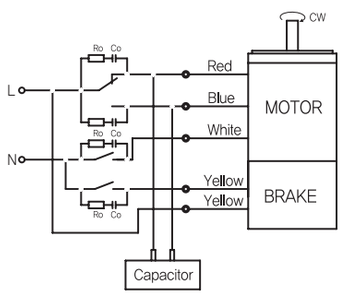



3ø 380V, 400V

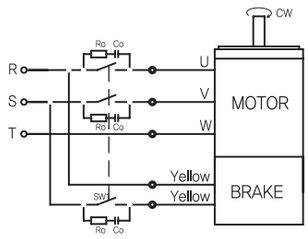



### Brake Motor

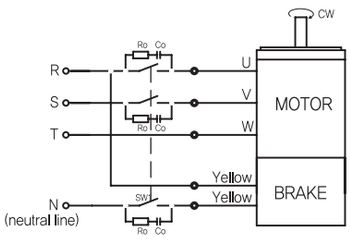
1ø




3ø 220~230V




3ø 380~440V




1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) The supply voltage for brakes is 220V.

# 300W

Brake Motor
300W(□104mm)

## Motor Specification

| Model<br>10BDG*-300F□-T: Gear Type Shaft<br>10BDD*-300F-T: D-Cut Type Shaft<br>10BDK*-300F-T: Key Type Shaft<br>Terminal Box Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10BDGD-300F□-T | 300 | 1Ø 220 | 60 | 4 | 30min. | 13.60 | 1.360 | 1600 | 2.52 | 18.27 | 1.827 | 15.0 / 450 |
| 10BDG7-300F□-T | 300 | 3Ø 230 | 50 | 4 | 30min. | 47.00 | 4.793 | 1300 | 1.70 | 22.48 | 2.248 | – |
| | | 3Ø 400 | | | | 47.00 | 4.793 | 1300 | 1.01 | 22.48 | 2.248 | |
| 10BDG8-300F□-T | 300 | 3Ø 440 | 50 | 4 | 30min. | 47.00 | 4.793 | 1300 | 0.88 | 22.48 | 2.248 | – |
| | | | 60 | | | 35.00 | 3.500 | 1550 | 0.88 | 18.86 | 1.886 | |

1) Enter the phase & voltage code in the place * and enter the model type of attaching gearbox in the box (□) within the motor model name.
2) The phase & voltage code D contains a built-in thermal protector.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 360 | 200 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 20 | 18 | 15 | 12 | 10 |
| 10BDG*-300FU-T | 10UBK□ BH | kgfcm | 45.0 | 75.0 | 135.0 | 140.0 | 205.0 | 250.0 | 300.0 | 300.0 | 350.0 | 350.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 4.41 | 7.35 | 13.23 | 13.72 | 20.09 | 24.50 | 29.40 | 29.40 | 34.30 | 34.30 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 |
| 10BDK*-300FU-T | 10WHD□-040 | kgfcm | 65.0 | 95.0 | 125.0 | 175.0 | 225.0 | 270.0 | 300.0 | 285.0 |
| | | N.m | 6.37 | 9.31 | 12.25 | 17.15 | 22.05 | 26.46 | 29.40 | 27.93 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 10BDG*-300FHC-T | 10HC□□ | kgfcm | 200 | 267 | 333 | 400 | 533 | 667 | 800 | 1067 | 1333 | 1600 | 2133 | 2666 | 3000 | 3000 |
| | | N.m | 19.6 | 26.2 | 32.6 | 39.2 | 52.2 | 65.4 | 78.4 | 105 | 131 | 157 | 209 | 261 | 294 | 294 |

### 50Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 500 | 300 | 167 | 150 | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 16.7 | 15 | 12.5 | 10 | 8.3 |
| 10BDG*-300FU-T | 10UBK□ BH | kgfcm | 55.0 | 95.0 | 170.0 | 170.0 | 250.0 | 300.0 | 300.0 | 300.0 | 350.0 | 350.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 5.39 | 9.31 | 16.66 | 16.66 | 24.50 | 29.40 | 29.40 | 29.40 | 34.30 | 34.30 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 300 | 200 | 150 | 100 | 75 | 60 | 50 | 37.5 |
| 10BDK*-300F-T | 10WHD□-040 | kgfcm | 80.0 | 115.0 | 150.0 | 215.0 | 275.0 | 335.0 | 375.0 | 350.0 |
| | | N.m | 7.84 | 11.27 | 14.70 | 21.07 | 26.95 | 32.83 | 36.75 | 34.30 |

| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | 18.8 | 15 | 12.5 | 9.4 | 7.5 | 6.7 | 6.3 |
| 10BDG*-300FHC-T | 10HC□□ | kgfcm | 246 | 328 | 410 | 492 | 656 | 820 | 984 | 1313 | 1641 | 1969 | 2625 | 3000 | 3000 | 3000 |
| | | N.m | 24.1 | 32.1 | 40.2 | 48.2 | 64.3 | 80.4 | 96.4 | 129 | 161 | 193 | 257 | 294 | 294 | 294 |

1) Enter the phase & voltage code in the place * within the motor model name. 2) Enter the gear ratio in the box (□) within the gearbox model name.
3) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
4) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

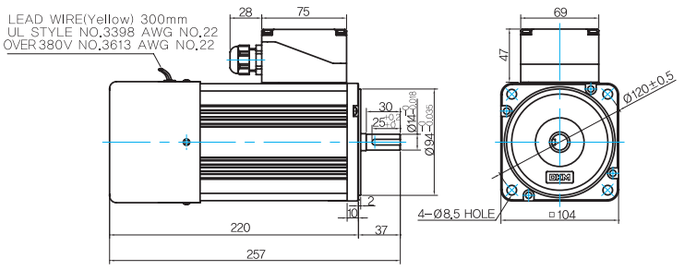
# B AC Motors

## Brake Motor 300W (□104mm)

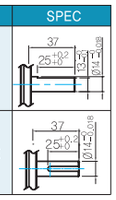
## Dimensions

### MOTOR ONLY

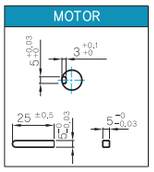
● MOTOR MODEL:
10BDK□-300F-T




● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| KEY TYPE |  |

● KEY SPEC

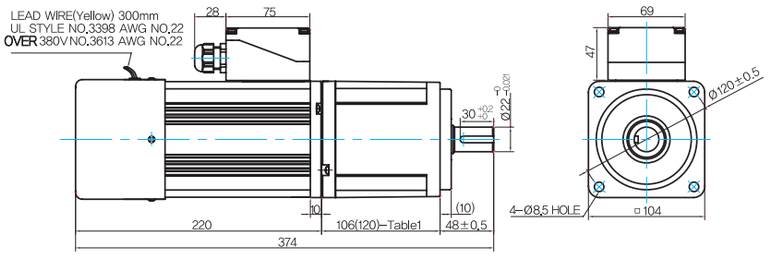
| MOTOR |
|---|
|  |

### GEARED MOTOR

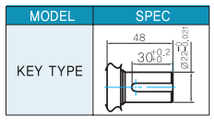
### U TYPE GEARBOX

● MOTOR MODEL:
10BDG□-300FU-T

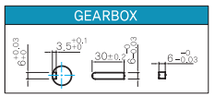
● GEARBOX MODEL:
10UBK□BH




● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

| GEARBOX |
|---|
|  |

● 106(120)-Table1

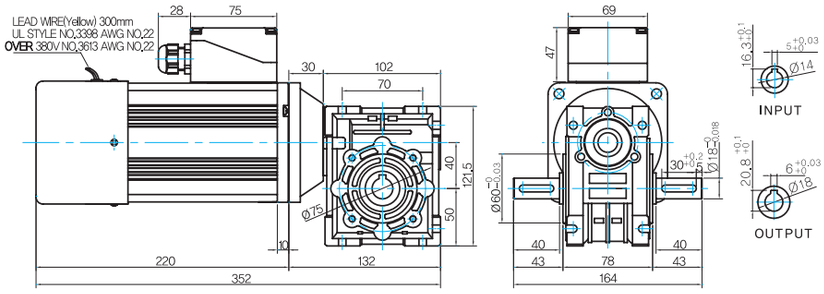
| SIZE(mm) | GEAR RATIO |
|---|---|
| 106 | 10UBK3BH – 10UBK60BH |
| 120 | 10UBK90BH – 10UBK180BH |

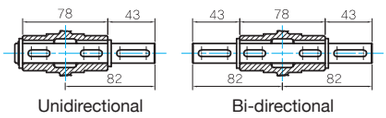
### WH TYPE GEARBOX

● MOTOR MODEL:
10BDK□-300F-T

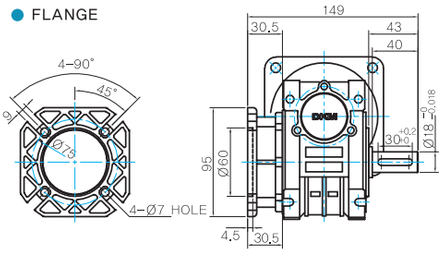
● GEARBOX MODEL:
10WHD□-040

● SHAFT

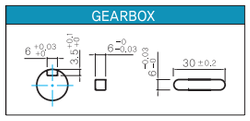



● FLANGE




● KEY SPEC

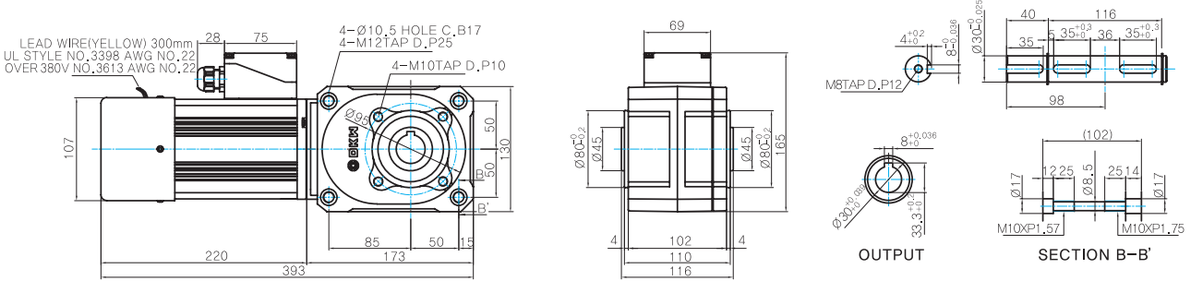
| GEARBOX |
|---|
|  |

### HC TYPE GEARBOX

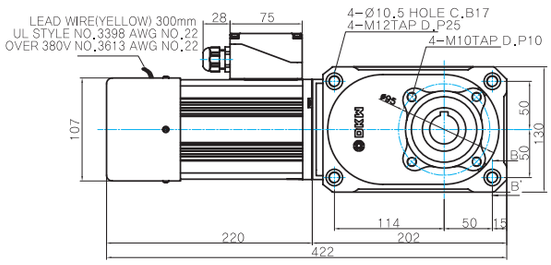
● GEARBOX MODEL :
10BDG□-300FHC-T (GENERAL FAN)

● GEARBOX MODEL :
10HC(15 ~ 60)□

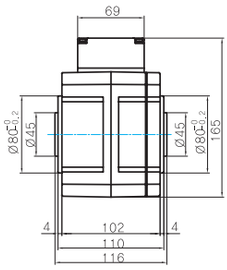
● SHAFT



● GEARBOX MODEL:
10BDG□-300FHC-T (GENERAL FAN)

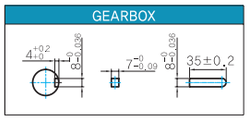



● GEARBOX MODEL:
10HC(80 ~ 240)□




● KEY SPEC

GEARBOX




## WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 7.1 |
| GEAR BOX | 10UBK3BH ~ 10UBK9BH | 2.0 |
| | 10UBK10BH ~ 10UBK15BH | 2.15 |
| | 10UBK20BH ~ 10UBK60BH | 2.3 |
| | 10UBK90BH ~ 10UBK180BH | 2.5 |
| | 10WHD□-040 | 2.2 |
| | 10HC15□ | 5.5 |
| | 10HC20□ ~ 10HC60□ | 5.6 |
| | 10HC80□ ~ 10HC240□ | 6.4 |

* The output flange and shaft are sold separately

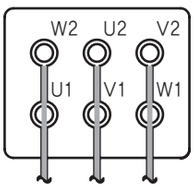
## Motor Images

| 10BDK□-300F-T | 10BDG□-300FU-T + 10UBK□BH | 10BDK□-300F-T + 10WHD□-040 | 10BDG□-300FHC-T+10HC□□ |
|---|---|---|---|
| | | | |

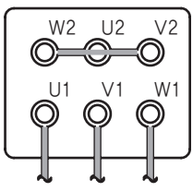
## Connection Diagrams

### Terminal Box

1ø 220~240V
3ø 220V, 230V, 440V

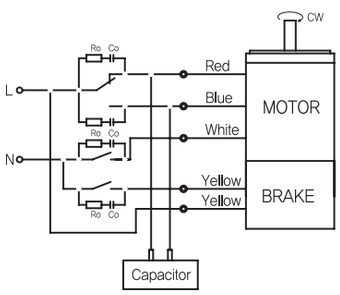



3ø 380V, 400V

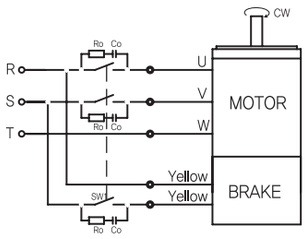



### Brake Motor

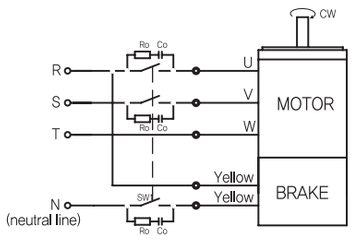
1ø




3ø 220~230V




3ø 380~440V




1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) The supply voltage for brakes is 220V.

# 400W Brake Motor 400W(□104mm)

## Motor Specification

| Model<br>10BDG6-400F□-T: Gear Type Shaft<br>10BDD6-400F-T: D-Cut Type Shaft<br>10BDK6-400F-T: Key Type Shaft<br>Terminal Box Type | Output W | Voltage V | Frequency Hz | Poles | Duty | Starting Torque kgfcm | Starting Torque N.m | Rated Load Speed r/min | Rated Load Current A | Rated Load Torque kgfcm | Rated Load Torque N.m | Capacitor μF / VAC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10BDG6-400F□-T | 400 | 3Ø 220 | 60 | 4 | 30min. | 47.00 | 4.793 | 1600 | 2.10 | 24.35 | 2.435 | – |
| | | 3Ø 380 | | | | 47.00 | 4.793 | 1600 | 1.21 | 24.35 | 2.435 | |

1) Enter the model type of attaching gearbox in the box (□) within the moto r model name.
2) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.
※ It is not possible to use an inverter for three phase 380~440V motor. When the inverter is used, the insulation of winding coil becomes hot and may cause damage to the motor.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

| Motor Model | Gearbox Model | Gear Ratio | 3 | 5 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 600 | 360 | 200 | 180 | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 20 | 18 | 15 | 12 | 10 |
| 10BDG6-400FU-T | 10UBK□BH | kgfcm | 60.0 | 100.0 | 180.0 | 185.0 | 275.0 | 300.0 | 300.0 | 300.0 | 350.0 | 350.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 | 400.0 |
| | | N.m | 5.88 | 9.80 | 17.64 | 18.13 | 26.95 | 29.40 | 29.40 | 29.40 | 34.30 | 34.30 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 | 39.20 |

| Motor Model | Gearbox Model | Gear Ratio | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 360 | 240 | 180 | 120 | 90 | 72 | 60 | 45 |
| 10BDK6-400F-T | 10WHD□-040 | kgfcm | 85.0 | 125.0 | 160.0 | 230.0 | 295.0 | 355.0 | 395.0 | 375.0 |
| | | N.m | 8.33 | 12.25 | 15.68 | 22.54 | 28.91 | 34.79 | 38.71 | 36.75 |

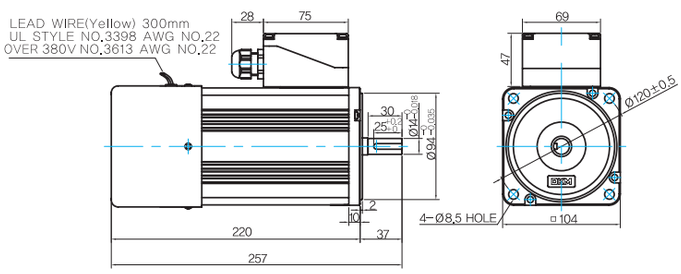
| Motor Model | Gearbox Model | Gear Ratio | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 160 | 200 | 225 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r/min | 120 | 90 | 72 | 60 | 45 | 36 | 30 | 22.5 | 18 | 15 | 11.3 | 9 | 8 | 7.5 |
| 10BDG*-400FHC-T | 10HC□□ | kgfcm | 267 | 356 | 444 | 533 | 711 | 889 | 1067 | 1422 | 1778 | 2133 | 2844 | 3000 | 3000 | 3000 |
| | | N.m | 26.2 | 34.9 | 43.5 | 52.2 | 69.7 | 87.1 | 105 | 139 | 174 | 209 | 279 | 294 | 294 | 294 |

1) Enter the gear ratio in the box (□) within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

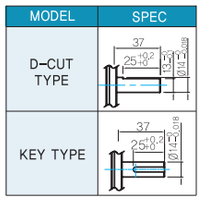
## Dimensions

### MOTOR ONLY

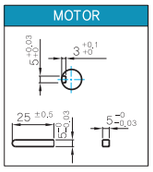
● MOTOR MODEL:
10BDK6-400F-T




● MOTOR OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| D-CUT TYPE |  |
| KEY TYPE | |

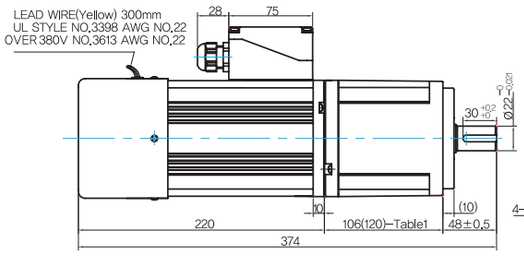
● KEY SPEC

| MOTOR |
|---|
|  |

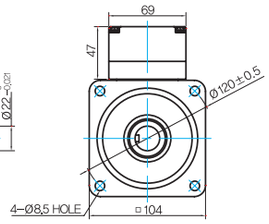
## GEARED MOTOR

### U TYPE GEARBOX

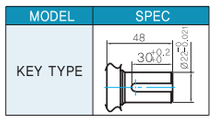
● MOTOR MODEL:
10BDG6-400FU-T




● GEARBOX MODEL:
10UBK□BH

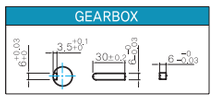



● GEARBOX OUTPUT SHAFT

| MODEL | SPEC |
|---|---|
| KEY TYPE |  |

● KEY SPEC

GEARBOX

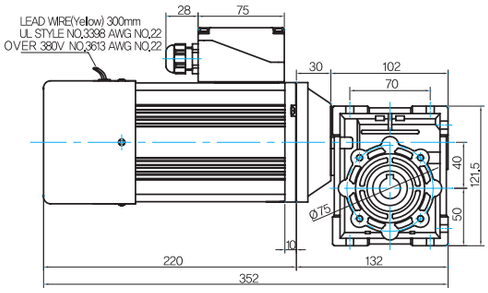


● 106(120)-Table1

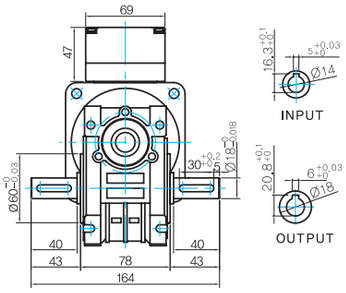
| SIZE(mm) | GEAR RATIO |
|---|---|
| 106 | 10UBK3BH – 10UBK60BH |
| 120 | 10UBK90BH – 10UBK180BH |

### WH TYPE GEARBOX

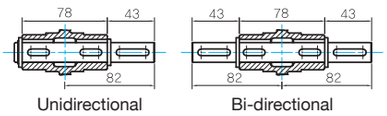
● MOTOR MODEL:
10BDK6-400F-T



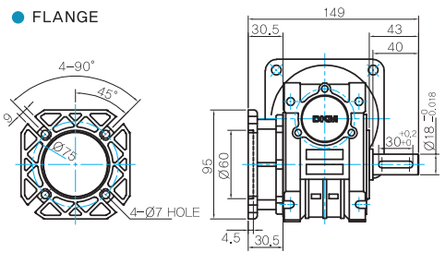

● GEARBOX MODEL:
10WHD□-040




● SHAFT(Unidirectional, Bi-directional)

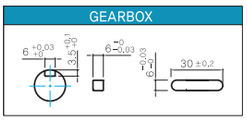



● FLANGE



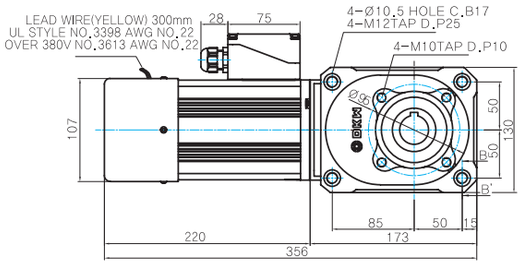

● KEY SPEC

GEARBOX

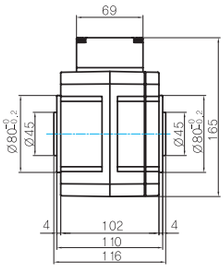


### HC TYPE GEARBOX

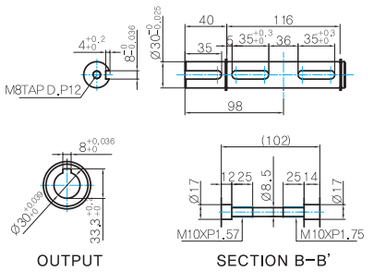
● GEARBOX MODEL :
10BDG6-400FHC-T (GENERAL FAN)




● GEARBOX MODEL :
10HC(15 ~ 60)□



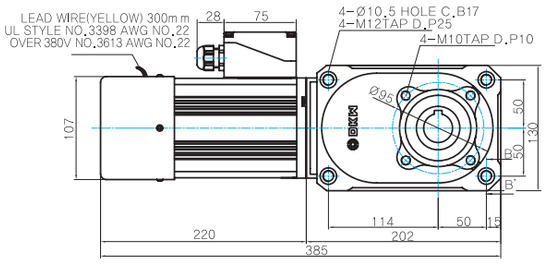

● SHAFT



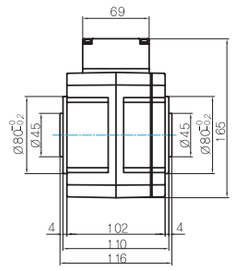
# B AC Motors

## Brake Motor 400W (□104mm)

● GEARBOX MODEL:
10BDG6-400FHC-T (GENERAL FAN)

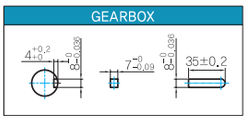



● GEARBOX MODEL:
10HC(80 ~ 240□)




● KEY SPEC

GEARBOX




### WEIGHT

| PART | | WEIGHT(Kg) |
|---|---|---|
| MOTOR | | 7.1 |
| GEAR BOX | 10UBK3BH ~ 10UBK9BH | 2.0 |
| | 10UBK10BH ~ 10UBK15BH | 2.15 |
| | 10UBK20BH ~ 10UBK60BH | 2.3 |
| | 10UBK90BH ~ 10UBK180BH | 2.5 |
| | 10WHD□-040 | 2.2 |
| | 10HC15□ | 5.5 |
| | 10HC20□ ~ 10HC60□ | 5.6 |
| | 10HC80□ ~ 10HC240□ | 6.4 |

* The output flange and shaft are sold separately

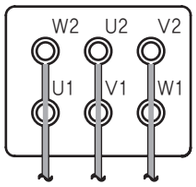
## Motor Images

| 10BDK6-400F-T | 10BDG6-400FU-T + 10UBK□BH | 10BDK6-400F-T + 10WHD□-040 | 10BDG6-400FHC-T+10HC□□ |
|---|---|---|---|
| | | | |

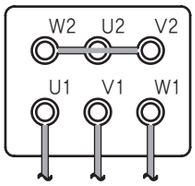
## Connection Diagrams

### Terminal Box

1ø 220~240V
3ø 220V, 230V, 440V

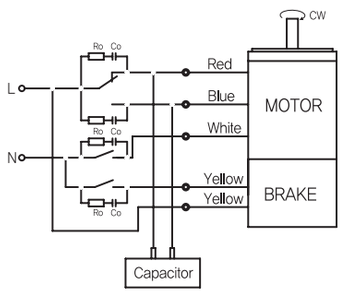



3ø 380V, 400V

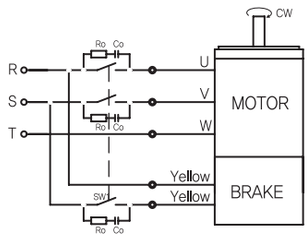



### Brake Motor

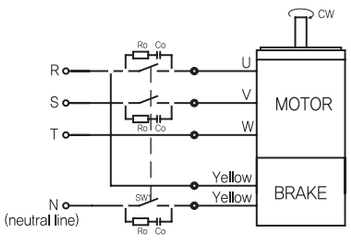
1ø




3ø 220~230V




3ø 380~440V




1) The direction of motor rotation is as viewed from the shaft end of the motor.
2) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
3) The supply voltage for brakes is 220V.