

# Brake Motor 90W (□90mm)

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## Motor Specification

| Model<br>9BDG*-90F□: Gear Type Shaft<br>9BDD*-90F: D-Cut Type Shaft<br>9BDK*-90F: Key Type Shaft | Output<br>W | Voltage<br>V | Frequency<br>Hz | Poles | Duty   | Starting Torque |       | Rated Load     |              |                     |       | Capacitor<br>μF / VAC |
|--|-------------|--------------|-----------------|-------|--------|-----------------|-------|----------------|--------------|---------------------|-------|-----------------------|
|  |             |              |                 |       |        | kgfcm           | N.m   | Speed<br>r/min | Current<br>A | Torque<br>kgfcm N.m |       |                       |
| 9BDGA-90F□   | 90          | 1∅110        | 60              | 4     | 30min. | 6.60            | 0.660 | 1600           | 2.00         | 6.40                | 0.640 | 25.0 / 250            |
| 9BDGD-90F□   | 90          | 1∅220        | 60              | 4     | 30min. | 6.00            | 0.600 | 1600           | 0.97         | 6.60                | 0.660 | 6.0 / 450             |
| 9BDGE-90F□   | 90          | 1∅220        | 50              | 4     | 30min. | 6.40            | 0.640 | 1250           | 0.90         | 7.80                | 0.780 | 6.0 / 450             |
|  |             | 1∅240        |                 |       |        | 7.80            | 0.780 |                | 1.00         | 8.90                | 0.890 |                       |
| 9BDGG-90F□   | 90          | 3∅220        | 50              | 4     | Cont.  | 20.00           | 2.000 | 1300           | 0.66         | 7.80                | 0.780 | -                     |
|  |             |              | 60              |       |        | 16.60           | 1.660 | 1600           | 0.55         | 5.80                | 0.580 |                       |
| 9BDGK-90F□   | 90          | 3∅380        | 50              | 4     | Cont.  | 21.80           | 2.180 | 1300           | 0.40         | 7.80                | 0.780 | -                     |
|  |             |              | 60              |       |        | 17.20           | 1.720 | 1600           | 0.33         | 5.80                | 0.580 |                       |
|  |             | 3∅400        | 50              | 4     | Cont.  | 24.00           | 2.400 | 1300           | 0.43         | 8.60                | 0.860 |                       |
|  |             |              | 60              |       |        | 19.20           | 1.920 | 1600           | 0.36         | 6.20                | 0.620 |                       |
|  |             | 3∅415        | 50              | 4     | Cont.  | 26.00           | 2.600 | 1350           | 0.43         | 7.40                | 0.740 |                       |
|  |             |              | 60              |       |        | 20.20           | 2.020 | 1600           | 0.37         | 6.80                | 0.680 |                       |
|  |             | 3∅440        | 50              | 4     | Cont.  | 29.00           | 2.900 | 1350           | 0.48         | 8.00                | 0.800 |                       |
|  |             |              | 60              |       |        | 23.80           | 2.380 | 1650           | 0.37         | 6.00                | 0.600 |                       |

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) All models contain a built-in thermal protector. 3) Gear Type Shaft is for attaching Gearbox and D-Cut & Key Type Shafts are for using motor only.  
 \* It is not possible to use inverter for three phase 380-440V motor. When 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 | r/min |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|----------------|--------------------|------------|-------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                |                    |            | 2     | 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   |       |
| 9BDG□<br>-90FP | 9PBK□BH<br>9PFK□BH | kgfcm      | 11.5  | 17.2 | 20.6 | 28.6 | 34.4 | 43.0 | 51.5 | 64.7 | 77.6 | 93.2 | 93.8 | 117.3 | 140.8 | 168.9 | 187.7 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
|                |                    | N.m        | 1.12  | 1.68 | 2.02 | 2.81 | 3.37 | 4.21 | 5.05 | 6.34 | 7.61 | 9.13 | 9.20 | 11.50 | 13.79 | 16.55 | 18.39 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG□<br>-90FH | 9HBK□BH<br>9HFK□BH | kgfcm      | -     | 17.2 | 20.6 | -    | 34.4 | -    | 51.5 | 64.7 | 77.6 | 93.2 | 93.8 | 117.3 | 140.8 | 168.9 | -     | 234.6 | 281.5 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |       |
|                |                    | N.m        | -     | 1.68 | 2.02 | -    | 3.37 | -    | 5.05 | 6.34 | 7.61 | 9.13 | 9.20 | 11.50 | 13.79 | 16.55 | -     | 22.99 | 27.59 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |       |

| Motor Model    | Gearbox Model       | Gear Ratio | r/min |      |      |      |       |       |       |       | Motor Model | Gearbox Model   | Gear Ratio    | r/min |      |      |      |      |       |       |       |       |       |       |
|----------------|---------------------|------------|-------|------|------|------|-------|-------|-------|-------|-------------|-----------------|---------------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|
|                |                     |            | 10    | 12   | 15   | 18   | 25    | 30    | 36    | 50    |             |                 |               | 60    | 7.5  | 10   | 15   | 20   | 25    | 30    | 40    | 50    | 60    | 80    |
| 9BDG□<br>-90FW | 9WD□BL/<br>□BR/□BRL | kgfcm      | 56.6  | 66.2 | 79.7 | 91.9 | 120.8 | 136.6 | 153.1 | 142.9 | 122.4       | 9BDG□<br>-90FWH | 9WHD□<br>-030 | kgfcm | 43.5 | 55.9 | 78.7 | 99.4 | 113.9 | 132.5 | 162.8 | 173.5 | 163.3 | 132.7 |
|                |                     | N.m        | 5.54  | 6.49 | 7.81 | 9.01 | 11.83 | 13.39 | 15.00 | 14.00 | 12.00       |                 |               | N.m   | 4.26 | 5.48 | 7.71 | 9.74 | 11.16 | 12.98 | 15.96 | 17.00 | 16.00 | 13.00 |

### 50Hz

| Motor Model    | Gearbox Model      | Gear Ratio | r/min |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|----------------|--------------------|------------|-------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                |                    |            | 2     | 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   |
| 9BDG□<br>-90FP | 9PBK□BH<br>9PFK□BH | kgfcm      | 12.9  | 19.4 | 23.3 | 32.4 | 38.8 | 48.6 | 58.3 | 73.1 | 87.8 | 105.3 | 106.1 | 132.6 | 159.1 | 190.9 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |
|                |                    | N.m        | 1.27  | 1.90 | 2.28 | 3.17 | 3.81 | 4.76 | 5.71 | 7.17 | 8.60 | 10.32 | 10.40 | 12.99 | 15.59 | 18.71 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |
| 9BDG□<br>-90FH | 9HBK□BH<br>9HFK□BH | kgfcm      | -     | 19.4 | 23.3 | -    | 38.8 | -    | 58.3 | 73.1 | 87.8 | 105.3 | 106.1 | 132.6 | 159.1 | 190.9 | -     | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 | 300.0 |       |
|                |                    | N.m        | -     | 1.90 | 2.28 | -    | 3.81 | -    | 5.71 | 7.17 | 8.60 | 10.32 | 10.40 | 12.99 | 15.59 | 18.71 | -     | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 | 29.40 |       |

| Motor Model    | Gearbox Model       | Gear Ratio | r/min |      |      |       |       |       |       |       | Motor Model | Gearbox Model   | Gear Ratio    | r/min |      |      |      |       |       |       |       |       |       |       |
|----------------|---------------------|------------|-------|------|------|-------|-------|-------|-------|-------|-------------|-----------------|---------------|-------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
|                |                     |            | 10    | 12   | 15   | 18    | 25    | 30    | 36    | 50    |             |                 |               | 60    | 7.5  | 10   | 15   | 20    | 25    | 30    | 40    | 50    | 60    | 80    |
| 9BDG□<br>-90FW | 9WD□BL/<br>□BR/□BRL | kgfcm      | 64.0  | 74.9 | 90.1 | 103.9 | 136.5 | 154.4 | 153.1 | 142.9 | 122.4       | 9BDG□<br>-90FWH | 9WHD□<br>-030 | kgfcm | 49.1 | 63.2 | 88.9 | 112.3 | 128.7 | 149.8 | 183.7 | 173.5 | 163.3 | 132.7 |
|                |                     | N.m        | 6.27  | 7.34 | 8.83 | 10.18 | 13.38 | 15.14 | 15.00 | 14.00 | 12.00       |                 |               | N.m   | 4.82 | 6.19 | 8.71 | 11.01 | 12.61 | 14.68 | 18.00 | 17.00 | 16.00 | 13.00 |

1) Enter the phase & voltage code in the box (□) within the motor model name. 2) Enter the gear ratio in the box (□) within the Gearbox model name.  
 3) A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates 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.

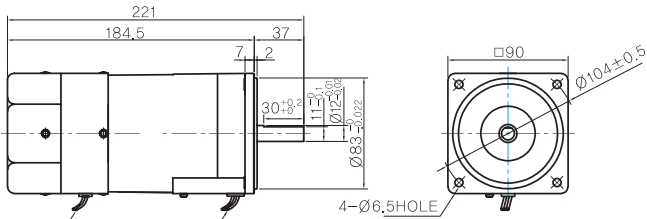
# B AC Motors

## Brake Motor 90W (□90mm)

### Dimensions

#### MOTOR ONLY

- MOTOR MODEL:  
9BDD□-90F (GENERAL FAN)



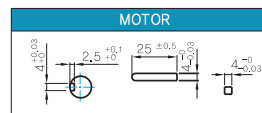
LEAD WIRE (Yellow) 300mm  
UL STYLE NO.3398 AWG NO.22  
380V OVER NO.3613 AWG NO.22

LEAD WIRE 300mm  
UL STYLE NO.3271 AWG NO.22

#### MOTOR OUTPUT SHAFT

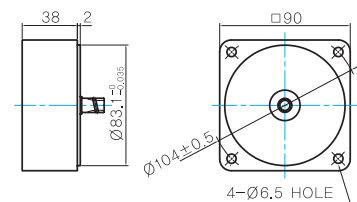
| MODEL      | SPEC |
|------------|------|
| D-CUT TYPE |      |
| 9BDD□-90F  |      |
| KEY TYPE   |      |
| 9BDD□-90F  |      |

#### KEY SPEC



#### INTER-DECIMAL GEARBOX

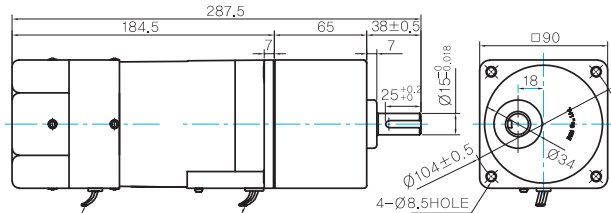
- MODEL:  
9XD10□□



#### GEARED MOTOR

##### P TYPE GEARBOX

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

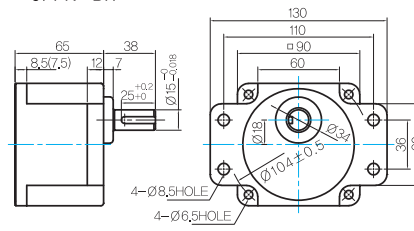


LEAD WIRE (Yellow) 300mm  
UL STYLE NO.3398 AWG NO.22  
380V OVER NO.3613 AWG NO.22

LEAD WIRE 300mm  
UL STYLE NO.3271 AWG NO.22

- GEARBOX MODEL:  
9PBK□BH

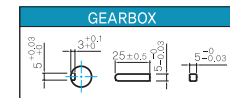
- GEARBOX MODEL:  
9PFK□BH



#### GEARBOX OUTPUT SHAFT

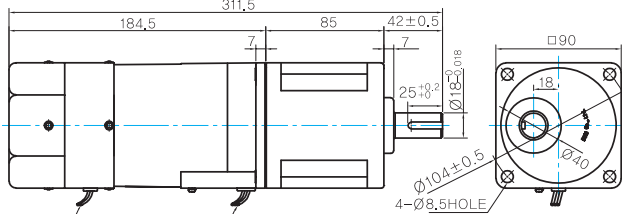
| MODEL              | SPEC |
|--------------------|------|
| KEY TYPE           |      |
| 9PBK□BH<br>9PFK□BH |      |

#### KEY SPEC



##### H TYPE GEARBOX

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

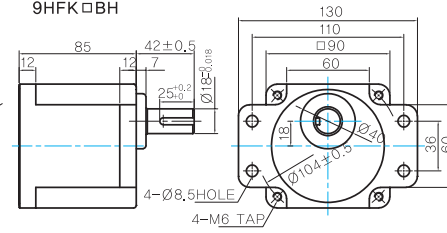


LEAD WIRE (Yellow) 300mm  
UL STYLE NO.3398 AWG NO.22  
380V OVER NO.3613 AWG NO.22

LEAD WIRE 300mm  
UL STYLE NO.3271 AWG NO.22

- GEARBOX MODEL:  
9HBK□BH

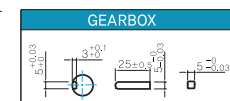
- GEARBOX MODEL:  
9HFK□BH



#### GEARBOX OUTPUT SHAFT

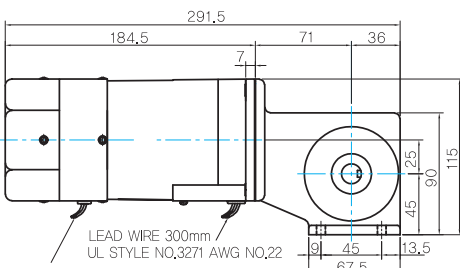
| MODEL              | SPEC |
|--------------------|------|
| KEY TYPE           |      |
| 9HBK□BH<br>9HFK□BH |      |

#### KEY SPEC



##### W TYPE GEARBOX

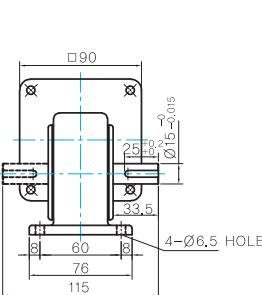
- MOTOR MODEL:  
9BDG□-90FW (GENERAL FAN)



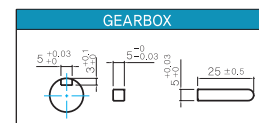
LEAD WIRE 300mm  
UL STYLE NO.3271 AWG NO.22

LEAD WIRE (Yellow) 300mm  
UL STYLE NO.3398 AWG NO.22  
380V OVER NO.3613 AWG NO.22

- GEARBOX MODEL:  
9WD□BL/BR/BRL

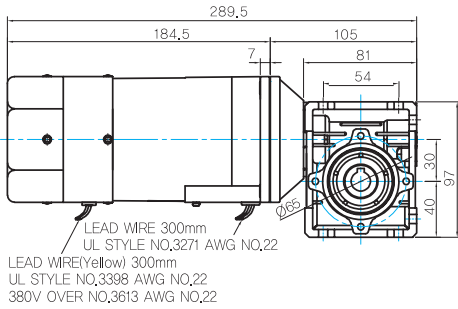


#### KEY SPEC

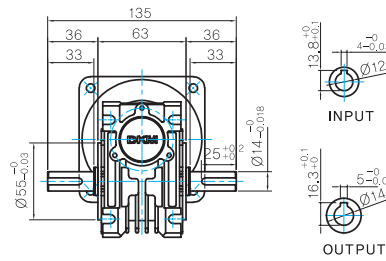


### WH TYPE GEARBOX

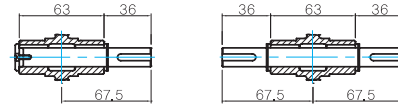
● MOTOR MODEL:  
9BDG□-90FWH (GENERAL FAN)



● GEARBOX MODEL:  
9WHD□-030



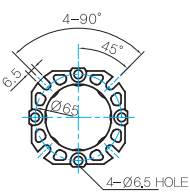
● SHAFT(Unidirectional, Bi-directional)



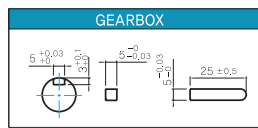
### WEIGHT

| PART     |                             | WEIGHT(Kg) |
|----------|-----------------------------|------------|
| MOTOR    |                             | 3,5        |
| GEAR BOX | 9PB(F)K2BH ~ 9PB(F)K18BH    | 1,3        |
|          | 9PB(F)K20BH ~ 9PB(F)K200BH  | 1,4        |
|          | 9HB(F)K3BH ~ 9HB(F)K9BH     | 1,45       |
|          | 9HB(F)K12.5BH ~ 9HB(F)K18BH | 1,5        |
|          | 9HB(F)K20BH ~ 9HB(F)K60BH   | 1,7        |
|          | 9HB(F)K75BH ~ 9HB(F)K200BH  | 1,8        |
|          | 9WD□BL/BR/BRL               | 1,0        |
|          | 9WHD□-030                   | 1,13       |
| 9XD10□   | 0,5                         |            |

● FLANGE



● KEY SPEC



\* The output flange and shafts are sold separately.

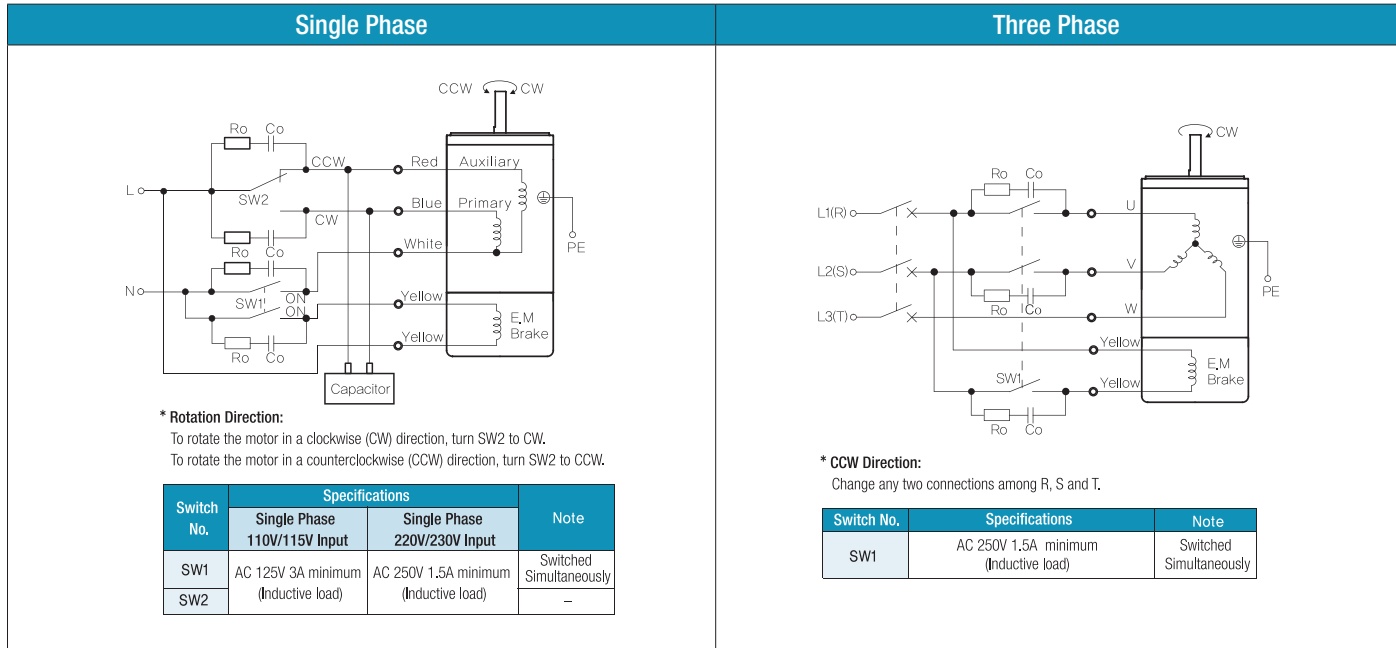
### Motor Images



# B AC Motors

Brake Motor 90W (□90mm)

## Connection Diagrams



- 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)]