

## Brake Motor 120W (□90mm)

# 120W Brake Motor 120W(□90mm)

## Motor Specification

Model 9BDG*-120F□: Gear Type Shaft 9BDD*-120F: D-Cut Type Shaft 9BDK*-120F: Key Type Shaft	Output W	Voltage V	Frequency Hz	Poles	Duty	Starting Torque		Rated Load			Capacitor μF / VAC	
						kgfcm	N.m	Speed r/min	Current A	Torque kgfcm N.m		
9BDGA-120F□	120	1φ110	60	4	30min.	7.60	0.760	1550	2.50	7.60	0.760	30.0 / 250
9BDGD-120F□	120	1φ220	60	4	30min.	6.60	0.660	1600	1.10	7.40	0.740	6.5 / 450
9BDGE-120F□	120	1φ220	50	4	30min.	6.40	0.640	1250	1.00	9.40	0.940	6.5 / 450
		1φ240				7.80	0.780		1.10	10.20	1.020	
9BDGG-120F□	120	3φ220	50	4	Cont.	22.00	2.200	1300	0.82	9.20	0.920	-
			60			20.00	2.000	1550	0.78	7.80	0.780	
9BDGK-120F□	120	3φ380	50	4	Cont.	25.00	2.500	1300	0.48	9.00	0.900	-
			60			20.00	2.000	1550	0.43	8.00	0.800	
			50	4	Cont.	27.40	2.740	1300	0.53	9.80	0.980	
			60			21.80	2.180	1550	0.45	8.60	0.860	
		3φ415	50	4	Cont.	29.80	2.980	1300	0.57	10.00	1.000	
			60			23.80	2.380	1600	0.44	7.80	0.780	
		3φ440	50	4	Cont.	32.00	3.200	1350	0.64	8.80	0.880	
			60			26.80	2.680	1600	0.48	8.60	0.860	

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.

## Max. Permissible Torque at Output Shaft of Gearbox

### 60Hz

Motor Model	Gearbox Model	Gear Ratio	Gear Ratio																							
			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□ -120FP	9PBK□BH 9PFK□BH	r/min	900	600	500	360	300	240	200	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
		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
9BDG□ -120FH	9HBK□BH 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	-	265.2	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	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60

Motor Model	Gearbox Model	Gear Ratio	Gear Ratio						Motor Model	Gearbox Model	Gear Ratio	Gear Ratio											
			10	12	15	18	25	30				36	50	60	7.5	10	15	20	25	30	40	50	60
9BDG□ -120FW	9WD□BL/ □BR/□BRL	r/min	180	150	120	100	72	60	50	60	9BDG□ -120FWH	9WHD□ -030	kgfcm	240	180	120	90	72	60	45	36	30	22
		N.m	60.7	71.0	85.5	98.6	129.5	146.5	153.1	142.9				122.4	49.1	63.2	88.9	112.3	128.7	149.8	183.7	173.5	163.3
			5.95	6.96	8.38	9.66	12.69	14.36	15.00	14.00	12.00	4.82	6.19	8.71	11.01	12.61	14.68	18.00	17.00	16.00	13.00		

### 50Hz

Motor Model	Gearbox Model	Gear Ratio	Gear Ratio																							
			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□ -120FP	9PBK□BH 9PFK□BH	r/min	750	500	417	300	250	200	167	120	100	83	75	60	50	42	38	30	25	20	17	15	13	10	8	7.5
		kgfcm	15.6	23.4	28.1	39.0	46.8	58.5	70.2	88.1	105.8	126.9	127.8	159.8	191.8	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
9BDG□ -120FH	9HBK□BH 9HFK□BH	kgfcm	-	23.4	28.1	-	46.8	-	70.2	88.1	105.8	126.9	127.8	159.8	191.8	230.1	-	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0
		N.m	-	2.29	2.75	-	4.59	-	6.88	8.64	10.36	12.44	12.53	15.66	18.79	22.55	-	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40

Motor Model	Gearbox Model	Gear Ratio	Gear Ratio						Motor Model	Gearbox Model	Gear Ratio	Gear Ratio												
			10	12	15	18	25	30				36	50	60	7.5	10	15	20	25	30	40	50	60	80
9BDG□ -120FW	9WD□BL/ □BR/□BRL	r/min	150	125	100	83	60	50	42	30	25	9BDG□ -120FWH	9WHD□ -030	kgfcm	200	150	100	75	60	50	38	30	25	18
		N.m	77.1	90.2	108.6	125.2	142.9	163.3	153.1	142.9	122.4				59.2	76.1	107.2	135.4	155.1	180.5	183.7	173.5	163.3	132.7
			7.55	8.84	10.64	12.27	14.00	16.00	15.00	14.00	12.00	5.80	7.46	10.50	13.27	15.20	17.69	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.

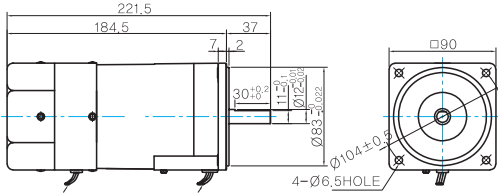
# B AC Motors

## Brake Motor 120W (□90mm)

### Dimensions

#### MOTOR ONLY

- MOTOR MODEL:  
9BDD□-120F (GENERAL FAN)



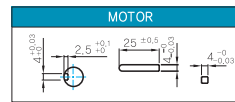
LEAD WIRE(Yellow) 300mm  
UL STYLE NO.3398 AWG NO.22  
380V OVER NO.3613 AWG NO.22

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

#### MOTOR OUTPUT SHAFT

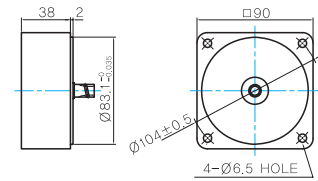
MODEL	SPEC
D-CUT TYPE	
KEY TYPE	

#### KEY SPEC



#### INTER-DECIMAL GEARBOX

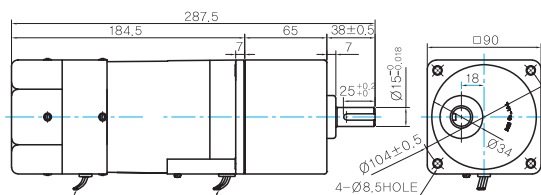
- MODEL:  
9XD10□□



#### GEARED MOTOR

##### P TYPE GEARBOX

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

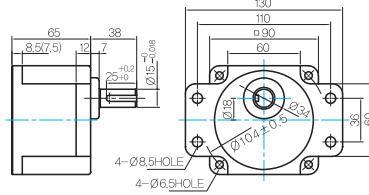


LEAD WIRE(Yellow) 300mm  
UL STYLE NO.3398 AWG NO.22  
380V OVER NO.3613 AWG NO.22

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

- GEARBOX MODEL:  
9PBK□BH

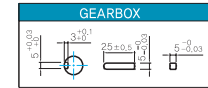
- GEARBOX MODEL:  
9PFK□BH



##### GEARBOX OUTPUT SHAFT

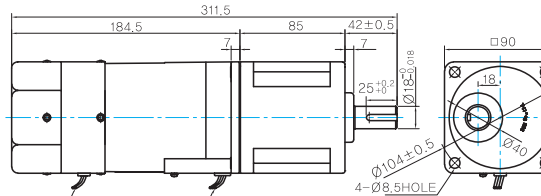
MODEL	SPEC
KEY TYPE	

##### KEY SPEC



##### H TYPE GEARHEAD

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

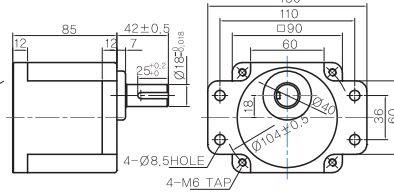


LEAD WIRE(Yellow) 300mm  
UL STYLE NO.3398 AWG NO.22  
380V OVER NO.3613 AWG NO.22

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

- GEARBOX MODEL:  
9HBK□BH

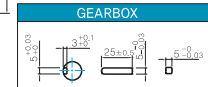
- GEARBOX MODEL:  
9HFK□BH



##### GEARBOX OUTPUT SHAFT

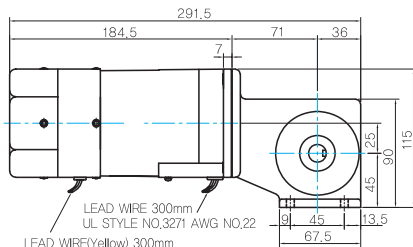
MODEL	SPEC
KEY TYPE	

##### KEY SPEC



##### W TYPE GEARBOX

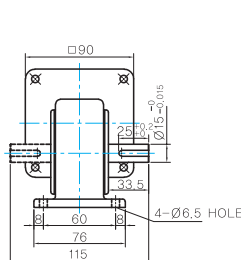
- MOTOR MODEL:  
9BDG□-120FW (GENERAL FAN)



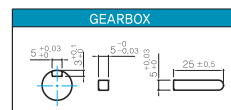
LEAD WIRE 300mm  
UL STYLE NO.3271 AWG NO.22

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

- GEARBOX MODEL:  
9WD□BL/BR/BRL

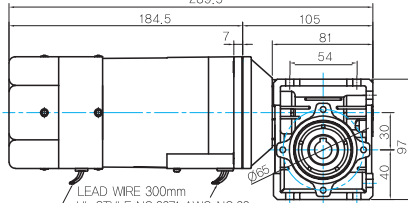


##### KEY SPEC

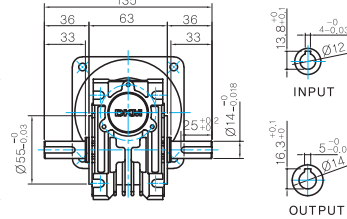


### WH TYPE GEARBOX

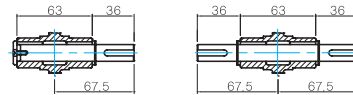
- MOTOR MODEL:  
9BDG□-120FWH (GENERAL FAN)  
289,5



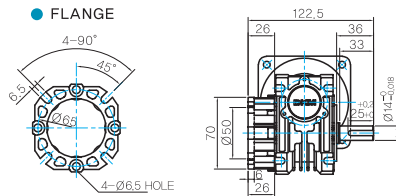
- GEARBOX MODEL:  
9WHD□-030  
135



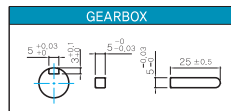
- SHAFT(Unidirectional, Bi-directional)



- FLANGE



- KEY SPEC



### WEIGHT

	PART	WEIGHT(Kg)
GEAR BOX	MOTOR	3.5
	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

\* The output flange and shafts are sold separately.

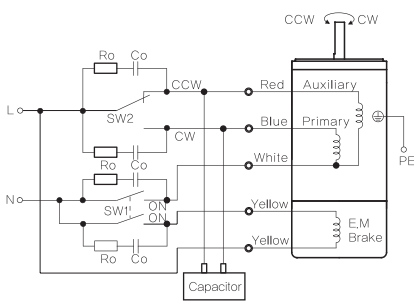
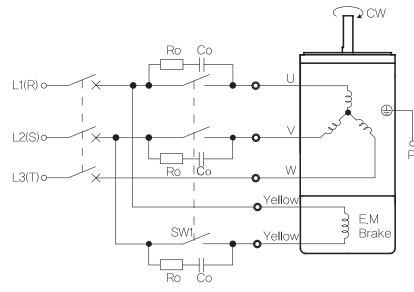
### Motor Images



# B AC Motors

## Brake Motor 120W (□90mm)

### Connection Diagrams

Single Phase	Three Phase																				
 <p>The diagram shows a single-phase AC motor with a brake. The main winding (Primary) is connected to the AC supply (L and N) through a switch SW2. The auxiliary winding (Auxiliary) is connected to the main winding through a capacitor (Co) and a resistor (Ro). The electromagnetic brake (E.M. Brake) is connected to the AC supply through a switch SW1. The motor shaft has two rotation directions: CCW (counterclockwise) and CW (clockwise). The motor is grounded to PE (Protective Earth).</p> <p><b>* Rotation Direction:</b>            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.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th rowspan="2">Switch No.</th> <th colspan="2">Specifications</th> <th rowspan="2">Note</th> </tr> <tr style="background-color: #0070C0; color: white;"> <th>Single Phase 110V/115V Input</th> <th>Single Phase 220V/230V Input</th> </tr> </thead> <tbody> <tr> <td>SW1</td> <td>AC 125V 3A minimum (Inductive load)</td> <td>AC 250V 1.5A minimum (Inductive load)</td> <td>Switched Simultaneously</td> </tr> <tr> <td>SW2</td> <td></td> <td></td> <td>—</td> </tr> </tbody> </table>	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			—	 <p>The diagram shows a three-phase AC motor with a brake. The three main windings (U, V, W) are connected to the three-phase supply (L1(R), L2(S), L3(T)) through switches. The auxiliary winding (Auxiliary) is connected to the main winding through a capacitor (Co) and a resistor (Ro). The electromagnetic brake (E.M. Brake) is connected to the AC supply through a switch SW1. The motor shaft has a rotation direction: CW (clockwise). The motor is grounded to PE (Protective Earth).</p> <p><b>* CCW Direction:</b>            Change any two connections among R, S and T.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th>Switch No.</th> <th>Specifications</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>SW1</td> <td>AC 250V 1.5A minimum (Inductive load)</td> <td>Switched Simultaneously</td> </tr> </tbody> </table>	Switch No.	Specifications	Note	SW1	AC 250V 1.5A minimum (Inductive load)	Switched Simultaneously
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SW2			—																		
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)]