# 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 kgfcm	 N.m	Rated Load Speed r/min	 Current A	 Torque kgfcm	 N.m	Capacitor μF / VAC
9BDGA-120F□	120	1ø110	60	4	30min.	7.60	0.760	1550	2.50	7.60	0.760	30.0 / 250
9BDGD-120F□	120	1ø220	60	4	30min.	6.60	0.660	1600	1.10	7.40	0.740	6.5 / 450
9BDGE-120F□	120	1ø220	50	4	30min.	6.40	0.640	1250	1.00	9.40	0.940	6.5 / 450
		1ø240				7.80	0.780		1.10	10.20	1.020	
9BDGG-120F□	120	3ø220	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	3ø380	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	
		3ø400	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	
		3ø415	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	
		3ø440	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.
※ 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	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
		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
9BDG□ -120FP	9PBK□BH 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□ -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		25.99	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	180	150	120	100	72	60	50	36	30
9BDG□ -120FW	9WD□BL/ □BR/□BRL	kgfcm	60.7	71.0	85.5	98.6	129.5	146.5	153.1	142.9	122.4
		N.m	5.95	6.96	8.38	9.66	12.69	14.36	15.00	14.00	12.00

Motor Model	Gearbox Model	Gear Ratio	7.5	10	15	20	25	30	40	50	60	80
		r/min	240	180	120	90	72	60	45	36	30	22
9BDG□ -120FWH	9WHD□ -030	kgfcm	49.1	63.2	88.9	112.3	128.7	149.8	183.7	173.5	163.3	132.7
		N.m	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	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
		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
9BDG□ -120FP	9PBK□BH 9PFK□BH	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
		N.m	1.53	2.29	2.75	3.82	4.59	5.73	6.88	8.64	10.36	12.44	12.53	15.66	18.79	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 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	10	12	15	18	25	30	36	50	60
		r/min	150	125	100	83	60	50	42	30	25
9BDG□ -120FW	9WD□BL/ □BR/□BRL	kgfcm	77.1	90.2	108.6	125.2	142.9	163.3	153.1	142.9	122.4
		N.m	7.55	8.84	10.64	12.27	14.00	16.00	15.00	14.00	12.00

Motor Model	Gearbox Model	Gear Ratio	7.5	10	15	20	25	30	40	50	60	80
		r/min	200	150	100	75	60	50	38	30	25	18
9BDG□ -120FWH	9WHD□ -030	kgfcm	59.2	76.1	107.2	135.4	155.1	180.5	183.7	173.5	163.3	132.7
		N.m	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.

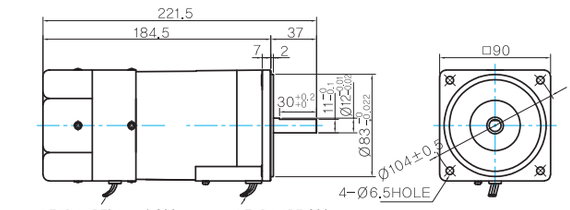
B AC Motors

Brake Motor 120W (□90mm)

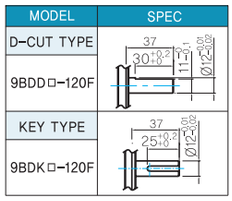
Dimensions

MOTOR ONLY

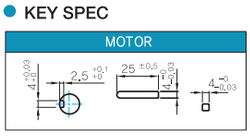
● MOTOR MODEL:
9BDD□–120F (GENERAL FAN)



● MOTOR OUTPUT SHAFT

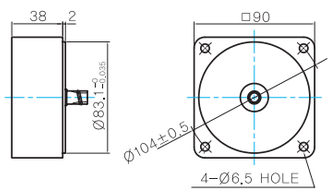
MODEL	SPEC
D-CUT TYPE	
9BDD□–120F	
KEY TYPE	
9BDK□–120F	

● KEY SPEC



INTER-DECIMAL GEARBOX

● MODEL:
9XD10□□



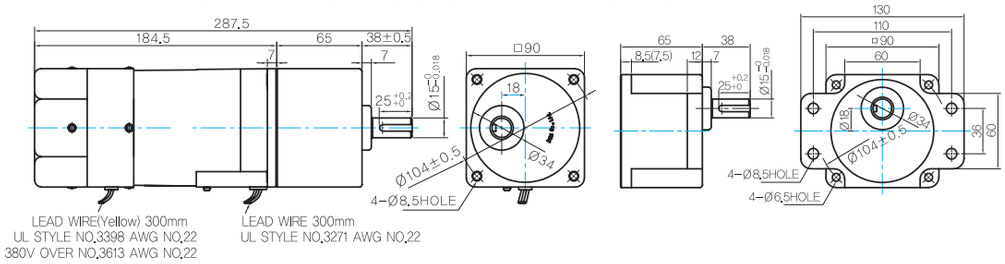
GEARED MOTOR

P TYPE GEARBOX

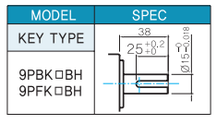
● MOTOR MODEL:
9BDG□–120FP (GENERAL FAN)

● GEARBOX MODEL:
9PBK□BH

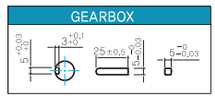
● GEARBOX MODEL:
9PFK□BH



● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	
9PBK□BH 9PFK□BH	

● KEY SPEC

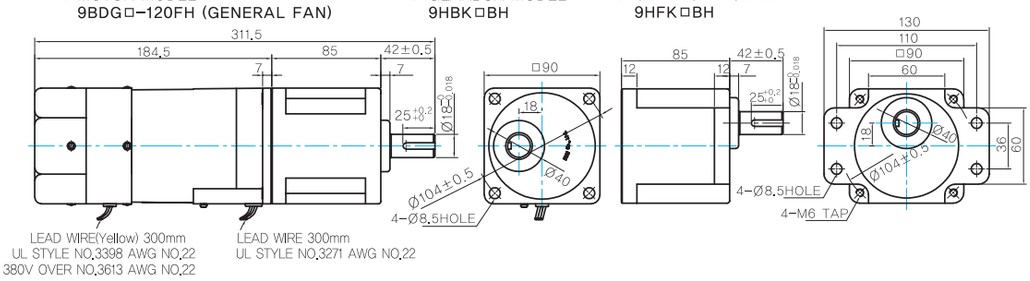


H TYPE GEARHEAD

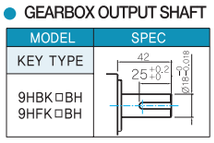
● MOTOR MODEL:
9BDG□–120FH (GENERAL FAN)

● GEARBOX MODEL:
9HBK□BH

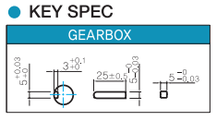
● GEARBOX MODEL:
9HFK□BH



● GEARBOX OUTPUT SHAFT

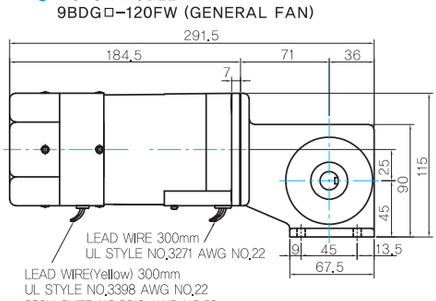
MODEL	SPEC
KEY TYPE	
9HBK□BH 9HFK□BH	

● KEY SPEC

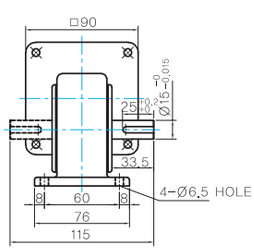


W TYPE GEARBOX

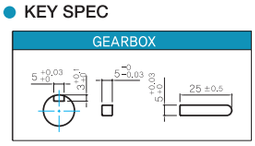
● MOTOR MODEL:
9BDG□–120FW (GENERAL FAN)



● GEARBOX MODEL:
9WD□BL/BR/BRL

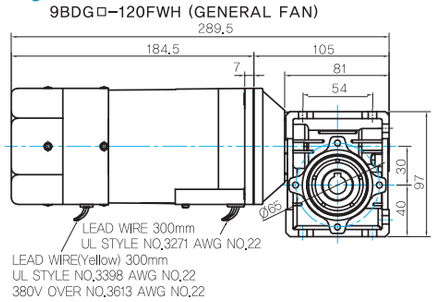


● KEY SPEC

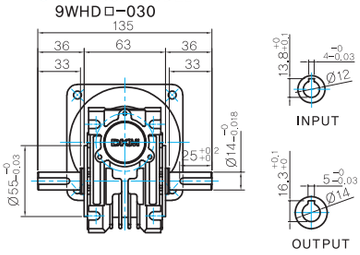


WH TYPE GEARBOX

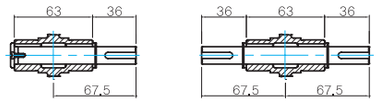
● MOTOR MODEL:
9BDG□-120FWH (GENERAL FAN)



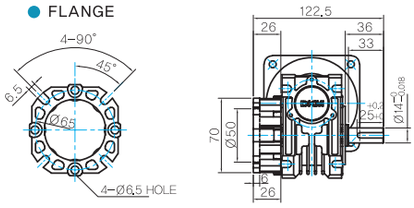
● GEARBOX MODEL:
9WHD□-030



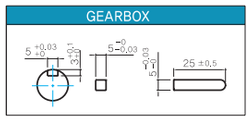
● SHAFT(Unidirectional, Bi-directional)



● FLANGE



● KEY SPEC



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

* The output flange and shafts are sold separately.

Motor Images

9BDD□-120F	9BDG□-120FP+9PBK□BH	9BDG□-120FP+9PFK□BH	9BDG□-120FH+9HBK□BH	9BDG□-120FH+9HFK□BH	9BDG□-120FW+9WD□BL
					

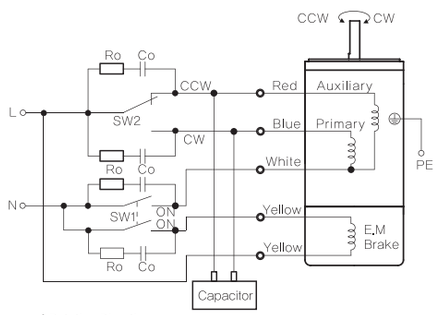
9BDG□-120FWH+9WHD□-030


B AC Motors

Brake Motor 120W (□90mm)

Connection Diagrams

Single Phase

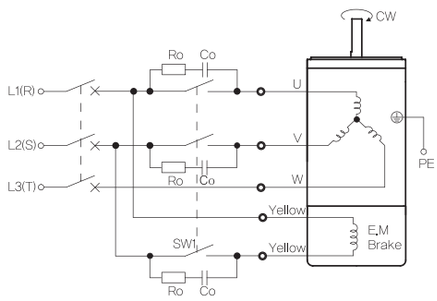


*** Rotation Direction:**

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 among 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)]