

# B AC Motors

S.C. Induction Motor 60W (□90mm)

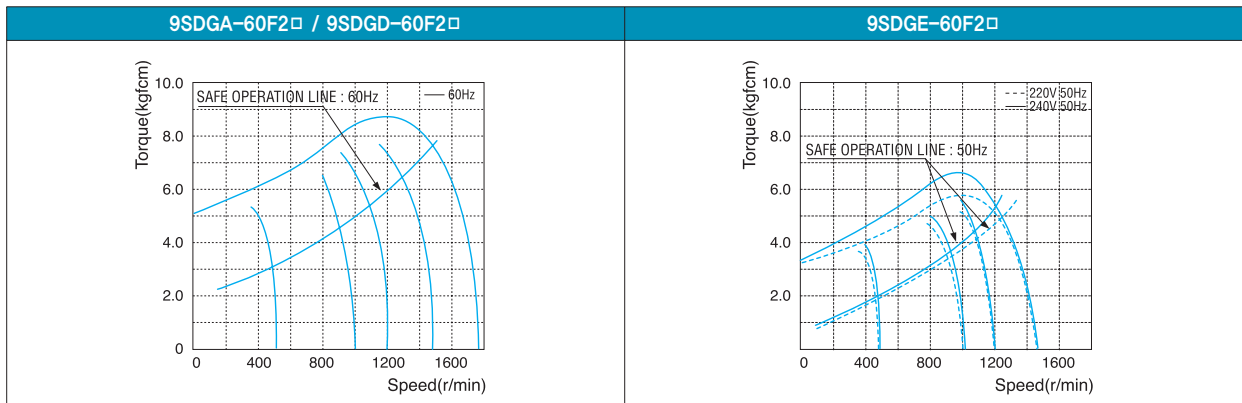
## 60W Speed Control Induction Motor 60W(□90mm)

### Motor Specification

Model 9SDG*-60F2□: Gear Type Shaft 9SDD*-60F2: D-Cut Type Shaft 9SDK*-60F2: Key Type Shaft	Output W	Voltage V	Frequency Hz	Poles	Duty	Speed Range r/min	Starting Torque		Permissible Torque				Capacitor μF / VAC
							kgfcm	N.m	1200r/min		90r/min		
									kgfcm	N.m	kgfcm	N.m	
9SDGA-60F2□	60	1φ 110	60	4	Cont.	90-1700	3.20	0.320	6.10	0.610	2.80	0.280	16.0 / 250
9SDGD-60F2□	60	1φ 220	60	4	Cont.	90-1700	3.80	0.380	6.50	0.650	3.00	0.300	4.0 / 400
9SDGE-60F2□	60	1φ 220	50	4	Cont.	90-1400	5.20	0.520	5.20	0.520	1.00	0.100	3.5 / 450
		5.80					0.580	5.80	0.580	1.00	0.100		

- 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 are for attaching Gearbox and D-Cut & Key Type Shaft are for using motor only.

### Speed-Torque Characteristics



### Max. Permissible Torque at Output Shaft of Gearbox

Motor Model	Gearbox Model	r/min	V	Hz	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			
9SDG□ -60F2P	9PBK □BH	1200	110	60	kgfcm	10.1	15.2	18.2	25.3	30.4	38.0	45.6	57.2	68.6	82.4	83.0	103.7	124.4	149.3	165.9	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0		
					N.m	0.99	1.49	1.79	2.48	2.98	3.72	4.47	5.60	6.73	8.07	8.13	10.16	12.20	14.63	16.26	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		220/240	60	kgfcm	10.8	16.2	19.4	27.0	32.4	40.5	48.6	60.9	73.1	87.8	88.4	110.5	132.6	159.1	176.8	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
				N.m	1.06	1.59	1.90	2.64	3.17	3.97	4.76	5.97	7.17	8.60	8.66	10.83	12.99	15.59	17.33	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		9PFK □BH	1200	110	60	kgfcm	9.6	14.4	17.3	24.1	28.9	36.1	43.3	54.4	65.3	78.3	78.9	98.6	118.3	142.0	157.8	197.2	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
						N.m	0.94	1.42	1.70	2.36	2.83	3.54	4.25	5.33	6.39	7.67	7.73	9.66	11.60	13.91	15.46	19.33	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	220/240		60	kgfcm	4.6	7.0	8.4	11.6	13.9	17.4	20.9	26.3	31.5	37.8	38.1	47.6	57.1	68.5	76.2	95.2	114.2	128.1	153.7	170.8	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
				N.m	0.46	0.68	0.82	1.14	1.37	1.71	2.05	2.57	3.09	3.70	3.73	4.66	5.60	6.72	7.46	9.33	11.20	12.55	15.06	16.74	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	90		60	kgfcm	5.0	7.5	9.0	12.5	14.9	18.7	22.4	28.1	33.8	40.5	40.8	51.0	61.2	73.4	81.6	102.0	122.4	137.3	164.7	183.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
				N.m	0.49	0.73	0.88	1.22	1.46	1.83	2.20	2.76	3.31	3.97	4.00	5.00	6.00	7.20	8.00	10.00	12.00	13.45	16.14	17.93	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	220/240	50	kgfcm	1.7	2.5	3.0	4.2	5.0	6.2	7.5	9.4	11.3	13.5	13.6	17.0	20.4	24.5	27.2	34.0	40.8	45.8	54.9	61.0	73.2	91.5	109.8	109.8	109.8	109.8	109.8	109.8	
			N.m	0.16	0.24	0.29	0.41	0.49	0.61	0.73	0.92	1.10	1.32	1.33	1.67	2.00	2.40	2.67	3.33	4.00	4.48	5.38	5.98	7.17	8.97	10.76	10.76	10.76	10.76	10.76		

- 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.

Motor Model	Gearbox Model	r/min	V	Hz	Gear Ratio	3	3.6	6	9	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180	200			
9SDG□ -60F2H	9HBK □BH 9HFK □BH	1200	110	60	kgfcm N.m	15.2 1.49	18.2 1.79	30.4 2.98	45.6 4.47	57.2 5.60	68.6 6.73	82.4 8.07	83.0 8.13	103.7 10.16	124.4 12.20	149.3 14.63	207.4 20.33	248.9 24.39	279.1 27.35	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40		
			220	60	kgfcm N.m	16.2 1.59	19.4 1.90	32.4 3.17	48.6 4.76	60.9 5.97	73.1 7.17	87.8 8.60	88.4 8.66	110.5 10.83	132.6 12.99	159.1 15.59	221.0 21.66	265.2 25.99	297.4 29.14	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	
			220/ 240	50	kgfcm N.m	14.4 1.42	17.3 1.70	28.9 2.83	43.3 4.25	54.4 5.33	65.3 6.39	78.3 7.67	78.9 7.73	98.6 9.66	118.3 11.60	142.0 13.91	197.2 19.33	236.6 23.19	265.4 26.00	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40
		90	110	60	kgfcm N.m	7.0 0.68	8.4 0.82	13.9 1.37	20.9 2.05	26.3 2.57	31.5 3.09	37.8 3.70	38.1 3.73	47.6 4.66	57.1 5.60	68.5 6.72	95.2 9.33	114.2 11.20	128.1 12.55	153.7 15.06	170.8 16.74	205.0 20.09	256.2 25.11	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40
			220	60	kgfcm N.m	7.5 0.73	9.0 0.88	14.9 1.46	22.4 2.20	28.1 2.76	33.8 3.31	40.5 3.97	40.8 4.00	51.0 5.00	61.2 6.00	73.4 7.20	102.0 10.00	122.4 12.00	137.3 13.45	164.7 16.14	183.0 17.93	219.6 21.52	274.5 26.90	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40	300.0 29.40
			220/ 240	50	kgfcm N.m	2.5 0.24	3.0 0.29	5.0 0.49	7.5 0.73	9.4 0.92	11.3 1.10	13.5 1.32	13.6 1.33	17.0 1.67	20.4 2.00	24.5 2.40	34.0 3.33	40.8 4.00	45.8 4.48	54.9 5.38	61.0 5.98	73.2 7.17	91.5 8.97	109.8 10.76	109.8 10.76			

Motor Model	Gearbox Model	r/min	V	Hz	Gear Ratio	10	12	15	18	25	30	36	50	60
9SDG□ -60F2W	9WD□BL/ □BR/□BRL	1200	110	60	kgfcm N.m	50.0 4.90	58.6 5.74	70.5 6.90	81.3 7.96	106.8 10.46	120.8 11.84	140.5 13.77	142.9 14.00	122.4 12.00
			220	60	kgfcm N.m	53.3 5.22	62.4 6.12	75.1 7.36	86.6 8.48	113.8 11.15	128.7 12.61	149.8 14.68	142.9 14.00	122.4 12.00
			220/240	50	kgfcm N.m	47.6 4.66	55.7 5.46	67.0 6.57	77.3 7.57	101.5 9.95	114.8 11.25	133.6 13.10	142.9 14.00	122.4 12.00
		90	110	60	kgfcm N.m	23.0 2.25	26.9 2.63	32.3 3.17	37.3 3.66	49.0 4.80	55.4 5.43	64.5 6.32	84.0 8.23	92.4 9.06
			220	60	kgfcm N.m	24.6 2.41	28.8 2.82	34.7 3.40	40.0 3.92	52.5 5.15	59.4 5.82	69.1 6.77	90.0 8.82	99.0 9.70
			220/240	50	kgfcm N.m	8.2 0.80	9.6 0.94	11.6 1.13	13.3 1.31	17.5 1.72	19.8 1.94	23.0 2.26	30.0 2.94	33.0 3.23

Motor Model	Gearbox Model	r/min	V	Hz	Gear Ratio	7.5	10	15	20	25	30	40	50	60	80
9SDG□ -60F2WH	9WHD□-030	1200	110	60	kgfcm N.m	38.4 3.77	49.4 4.84	69.5 6.81	87.8 8.61	100.7 9.86	117.1 11.48	144.0 14.11	164.7 16.14	163.3 16.00	132.7 13.00
			220	60	kgfcm N.m	41.0 4.01	52.7 5.16	74.1 7.26	93.6 9.17	107.3 10.51	124.8 12.23	153.4 15.03	173.5 17.00	163.3 16.00	132.7 13.00
			220/240	50	kgfcm N.m	36.5 3.58	47.0 4.60	66.1 6.48	83.5 8.18	95.7 9.38	111.4 10.91	136.9 13.41	156.6 15.35	163.3 16.00	132.7 13.00
		90	110	60	kgfcm N.m	17.6 1.73	22.7 2.22	31.9 3.13	40.3 3.95	46.2 4.53	53.8 5.27	66.1 6.48	75.6 7.41	84.0 8.23	98.6 9.66
			220	60	kgfcm N.m	18.9 1.85	24.3 2.38	34.2 3.35	43.2 4.23	49.5 4.85	57.6 5.64	70.8 6.94	81.0 7.94	90.0 8.82	105.6 10.35
			220/240	50	kgfcm N.m	6.3 0.62	8.1 0.79	11.4 1.12	14.4 1.41	16.5 1.62	19.2 1.88	23.6 2.31	27.0 2.65	30.0 2.94	35.2 3.45

## Motor Images



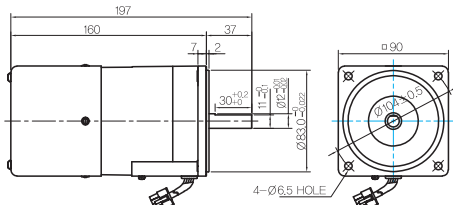
# B AC Motors

S.C. Induction Motor 60W (□90mm)

## Dimensions

### MOTOR ONLY

- MOTOR MODEL:  
9SDD□-60F2 (POWERFUL FAN)

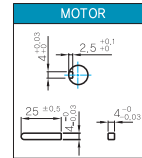


LEAD WIRE ASS'Y 300mm  
MOTOR UL STYLE NO.3271 AWG NO.22  
T,G UL STYLE NO.1430 AWG NO.24

### MOTOR OUTPUT SHAFT

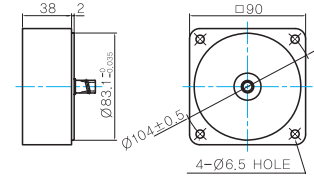
MODEL	SPEC
D-CUT TYPE	
KEY TYPE	
9SDD□-60F2	
9SDK□-60F2	

### KEY SPEC



### INTER-DECIMAL GEARBOX

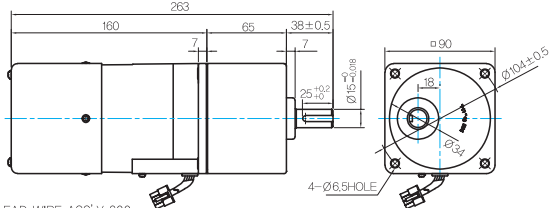
- MODEL: 9XD10□□



### GEARED MOTOR

#### P TYPE GEARBOX

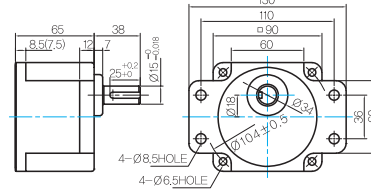
- MOTOR MODEL:  
9SDG□-60F2P (POWERFUL FAN)



LEAD WIRE ASS'Y 300mm  
MOTOR UL STYLE NO.3271 AWG NO.22  
T,G UL STYLE NO.1430 AWG NO.24

- GEARBOX MODEL:  
9PBK□BH

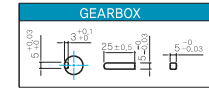
- GEARBOX MODEL:  
9PFK□BH



#### GEARBOX OUTPUT SHAFT

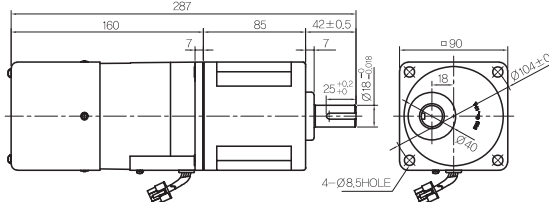
MODEL	SPEC
KEY TYPE	
9PBK□BH	
9PFK□BH	

#### KEY SPEC



#### H TYPE GEARBOX

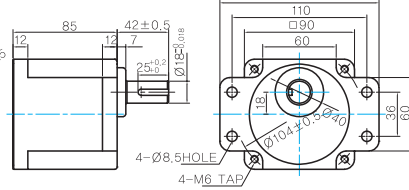
- MOTOR MODEL:  
9SDG□-60F2H (POWERFUL FAN)



LEAD WIRE ASS'Y 300mm  
MOTOR UL STYLE NO.3271 AWG NO.22  
T,G UL STYLE NO.1430 AWG NO.24

- GEARBOX MODEL:  
9HBK□BH

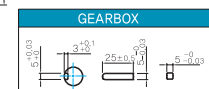
- GEARBOX MODEL:  
9HFK□BH



#### GEARBOX OUTPUT SHAFT

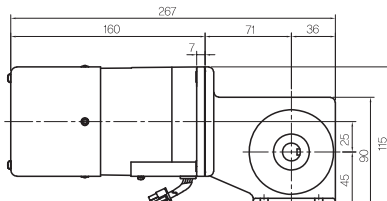
MODEL	SPEC
KEY TYPE	
9HBK□BH	
9HFK□BH	

#### KEY SPEC



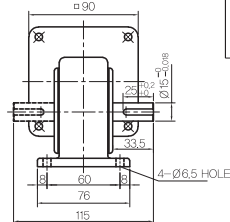
#### W TYPE GEARBOX

- MOTOR MODEL:  
9SDG□-60F2W (POWERFUL FAN)

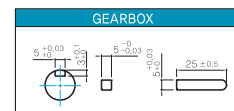


LEAD WIRE ASS'Y 300mm  
MOTOR UL STYLE NO.3271 AWG NO.22  
T,G UL STYLE NO.1430 AWG NO.24

- GEARBOX MODEL:  
9WD□BL/BR/BRL

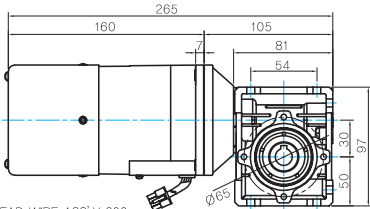


#### KEY SPEC



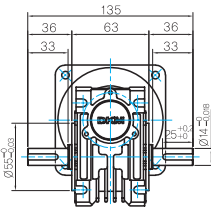
### WH TYPE GEARBOX

**MOTOR MODEL:**  
9SDG□-60F2WH (POWERFUL FAN)

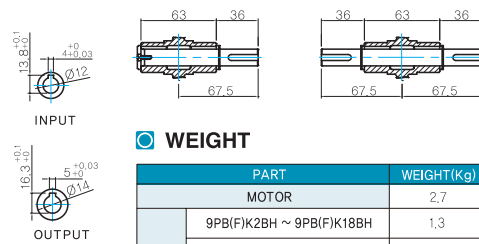


LEAD WIRE ASS'Y 300mm  
MOTOR UL STYLE NO.3271 AWG NO.22  
T.G UL STYLE NO.1430 AWG NO.24

**GEARBOX MODEL:**  
9WHD□-030



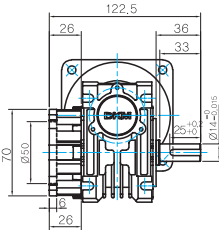
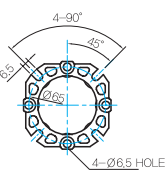
**SHAFT (Unidirectional, Bi-directional)**



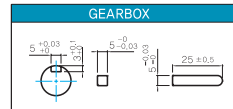
### WEIGHT

PART	WEIGHT(Kg)
MOTOR	2.7
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.

### Connection Diagrams

FX1000A – Connector Type	FX1000A – Terminal Type
<p><b>Direction:</b> Clockwise COM+CW, Counterclockwise COM+CCW <b>Capacitor:</b> Connect 3-9 or 6-9, according to its capacity</p>	
DSKM–Using Internal Volume	DSKM–Using External Volume
<p>PIN No.</p>	<p>* External speed setting device (20k Ω 1/4W)</p> <p>External speed setting device to NO. 2pin of the socket</p>

- 1) At first connect the speed controller with the motor as instructed in connection diagrams. And then input the external power to both of the terminal 'AC' for the rated speed operation. Now you can adjust the main volume to control the output speed of motor.
- 2) The direction of motor rotation is as viewed from the shaft end of the motor.
- 3) CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- 4) When using powerful fan (F2 type) attached motor, connect two black wires of the fan to No.1 and No.2 terminals in order to supply power.