DKM MOTOREN
TEIL 3

Ott Antriebstechnik
Standardisierte Individualität

HOCHQUALITATIVE AC- UND DC-MOTOREN

MIT STIRNRAD-, SCHNECKEN- ODER HELICROSSGETRIEBE

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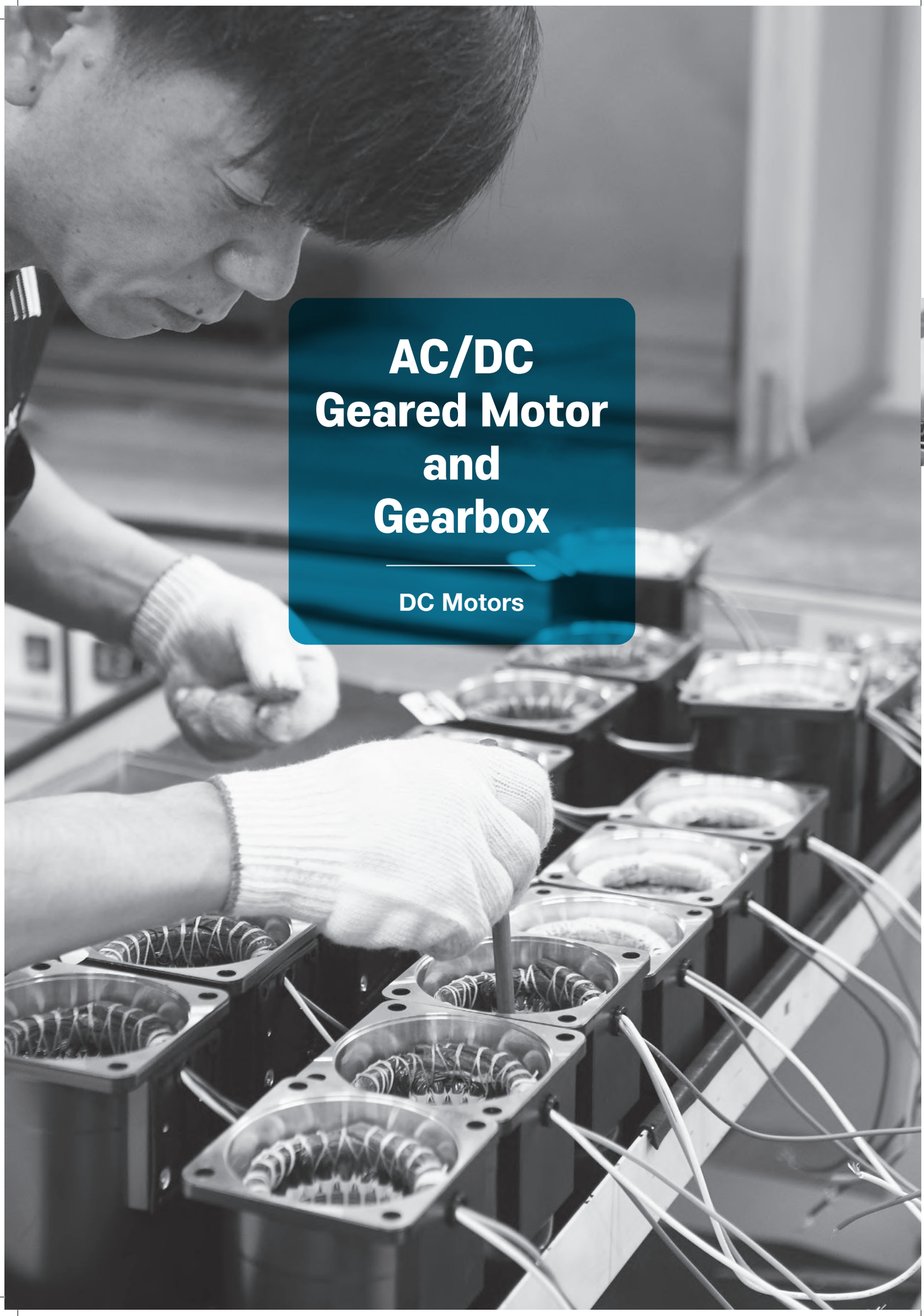


AC/DC Geared Motor and Gearbox

DC Motors

Contents

C DC Motors

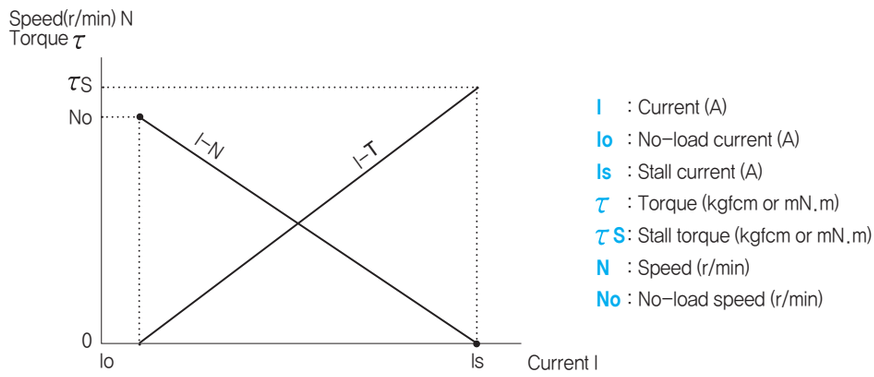
Technical Data of DC Motor

Features

- DC motor has a big starting torque and excellent mobility and when comparing with the same sized AC motor, the output is big and the efficiency is high.
- It is easy to control the speed and change the normal/reverse rotation.
- Compared to AC motor, it is available to manufacture low voltage motor which can be applied to portable machine which uses various spec., especially battery power (12V, 24V).
- Due to the wear of brush, there is a limit in the service life.
- The brush and commutator could cause noise when DC motor operates.

Current, Torque and Speed (r/min)

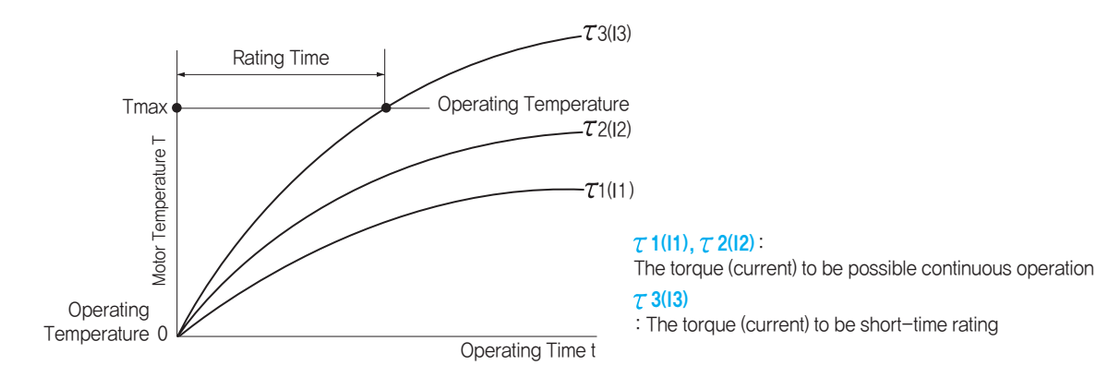
When the voltage of the power supply is fixed, the D.C. magnet motor shows the characteristic in the relationship between torque, speed, and current as below. As shown in the figure below they are almost linear relationships. If you increase the torque on the output shaft of the motor, proportional to that, the rotational speed decreases, and the current increases inversely. If the heating of the motor is ignored, it is the same until the output shaft of the motor is done a stall. (It is possible to control the torque by controlling the current.)



I : Current (A)
Io : No-load current (A)
Is : Stall current (A)
τ : Torque (kgfcm or mN.m)
τS : Stall torque (kgfcm or mN.m)
N : Speed (r/min)
No : No-load speed (r/min)

Rating Time

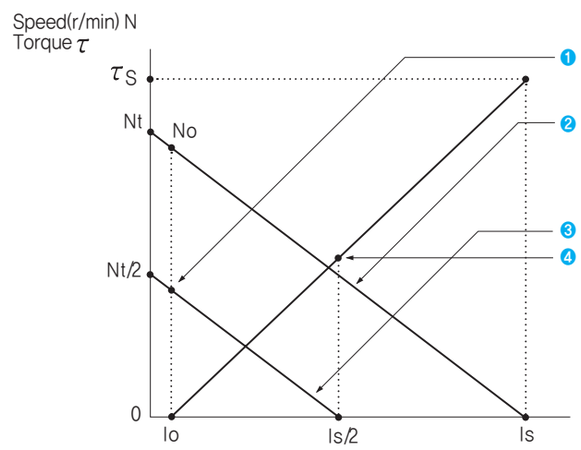
According to increase of current (torque), heat generation in the motor increases. If the temperature of components is saturated within the operating temperature range, it is possible to keep continuous operation.
If it is not saturated within the operating temperature, the time until it exceeds the operating temperature becomes the rated time and is classified as the motor of the short-time rated specification.



τ 1(I1), τ 2(I2) :
The torque (current) to be possible continuous operation
τ 3(I3)
: The torque (current) to be short-time rating

Performance of DC Motor in Case of Voltage Change at Power Supply

DC magnet motor can change speed by changing the power supply voltage. The relationship between torque(τ) , speed(N) and current(I) of a motor when the voltage is half (1/2) is shown below.
As the below figure, in the relationship between current and speed when power supply voltage was changed to half (1/2), ideal no-load speed "Nt" becomes "Nt/2" and it falls parallel to the performance of rated voltage.
The relationship between current and torque is the same as the rated voltage, but the stall torque "τs" falls accordingly as the stall current "Is" becomes "Is/2".



1. No-load speed when voltage is half (1/2)
2. I-N characteristic at rated voltage
3. I-N characteristic when the voltage is half (1/2)
4. Stall torque when the voltage is half (1/2)

▶ Nt : Ideal no-load speed when current is zero.
(The point extended the diagram of speed to zero current.)

Input, Output and Efficiency of DC motor

The input, output and efficiency can be calculated with the next formula.

Input(W) = Power Supply Voltage(V) X Current I(A)
Output(W) = Torque τ (kgfcm) X Speed N(r/min) X 1.027 X 10^{-2}

$$\text{Efficiency } \eta\,(\%) = \frac{\text{Output(W)}}{\text{Input(W)}} \times 100$$

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℃]
Ambient Temperature	-10℃~+40℃
Ambient Humidity	85% maximum

DC Motor

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DC Motor 15W(□60mm)

15W DC Motor 15W(□60mm)

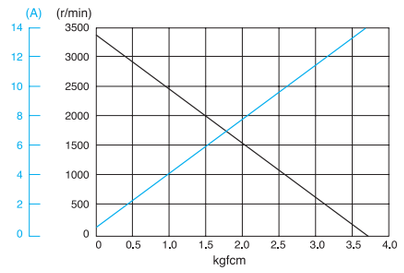
Motor Specification

Model 6DCG*-15-30: Gear Type Shaft 6DCD*-15-30: D-Cut Type Shaft	Output	Voltage	No Load		Starting Torque		Starting Current	Rated Load			
			Speed	Current				Speed	Current	Torque	
	W	V	r/min	A	kgfcm	N.m	A	r/min	A	kgfcm	N.m
6DC◇12-15-30	15	12	3200	1.00	4.20	0.420	13.00	3000	1.90	0.49	0.049
6DC◇24-15-30	15	24	3500	0.40	4.20	0.420	7.50	3000	1.10	0.49	0.049
6DC◇90-15-30	15	90	3150	0.10	4.80	0.480	2.60	3000	0.25	0.49	0.049

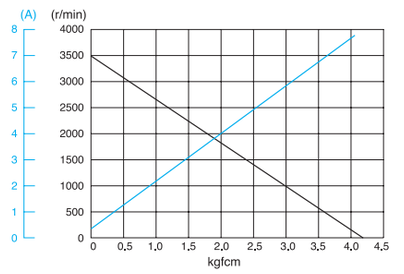
1) Enter the voltage code in the place * within the motor model name.
2) Enter the output shaft type of motor in the place ◇ within the motor model name.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

Performance Curve

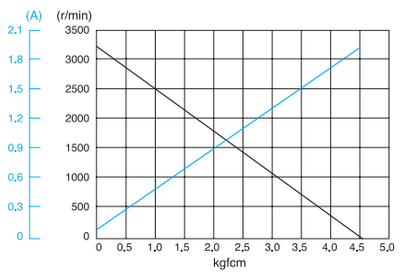
6DCG12-15-30



6DCG24-15-30



6DCG90-15-30



Max. Permissible Torque at Output Shaft of Gearbox

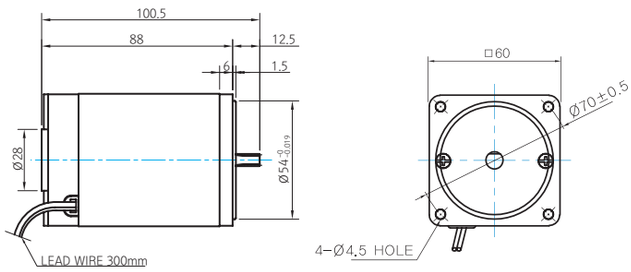
Motor Model	Gearbox Model	Gear Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200	250
		r/min	1000	833	600	500	400	333	300	240	200	167	150	120	100	83	75	60	50	40	33	30	25	20	17	15	12
6DCG*-15-30	**6GBD□MH**	kgfcm	1.2	1.4	2.0	2.4	3.0	3.6	4.0	5.0	6.0	7.1	7.2	8.9	10.7	12.9	14.3	16.2	19.4	24.3	29.1	30.0	30.0	30.0	30.0	30.0	30.0
		N.m	0.12	0.14	0.19	0.23	0.29	0.35	0.39	0.49	0.58	0.70	0.70	0.88	1.05	1.26	1.40	1.58	1.90	2.38	2.85	2.94	2.94	2.94	2.94	2.94	2.94

1) Enter the voltage code in the place * within the motor model name.
2) Enter the gear ratio in the place ◇ 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.

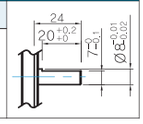
Dimensions

MOTOR ONLY

● MOTOR MODEL: 6DC□□-15-30



● MOTOR OUTPUT SHAFT

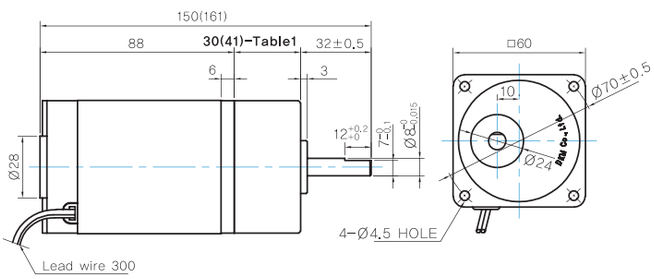
MODEL	SPEC
D-CUT TYPE	
6DCD□-15-30	

GEARED MOTOR

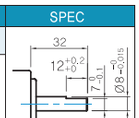
G TYPE GEARBOX

● MOTOR MODEL:
6DCG□-15-30

● GEARBOX MODEL:
6GBD□MH



● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	
6GBD□MH	

WEIGHT

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

● 30(41)-Table1

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

Motor Images

6DCD□-15-30	6DCG□-15-30+6GBD□MH
	

DC Motor 25W(□80mm)

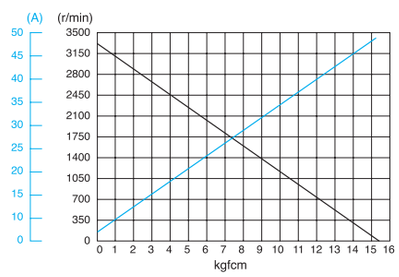
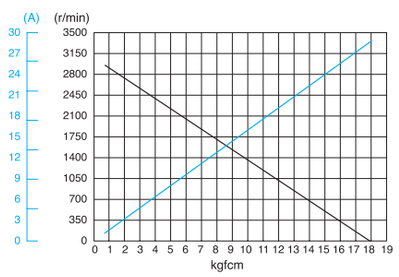
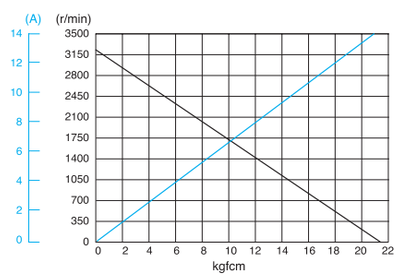
25W DC Motor 25W(□80mm)

Motor Specification

Model 8DCG(W)*-25-30: Gear Type Shaft 8DCD*-25-30: D-Cut Type Shaft	Output W	Voltage V	No Load		Starting Torque		Starting Current A	Rated Load			
			Speed r/min	Current A	kgfcm	N.m		Speed r/min	Current A	Torque kgfcm	Torque N.m
8DC◇12-25-30	25	12	3300	2.00	16.00	1.600	47.00	3000	3.80	0.811	0.081
8DC◇24-25-30	25	24	3100	0.72	15.00	1.500	22.00	3000	1.50	0.811	0.081
8DC◇90-25-30	25	90	3150	0.20	21.80	2.180	9.60	3000	0.35	0.811	0.081

1) Enter the voltage code in the place * within the motor model name.
2) Enter the output shaft type of motor in the place ◇ within the motor model name.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

Performance Curve

8DCG12-25-30	8DCG24-25-30	8DCG90-25-30
		

Max. Permissible Torque at Output Shaft of Gearbox

Motor Model	Gearbox Model	Gear Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
		r/min	1000	833	600	500	400	333	300	240	200	167	150	120	100
8DCG*-25-30	8GBK□BMH	kgfcm	2.0	2.4	3.3	3.9	4.9	5.9	6.6	8.2	9.9	11.8	11.8	14.8	17.8
		N.m	0.19	0.23	0.32	0.39	0.48	0.58	0.64	0.80	0.97	1.16	1.16	1.45	1.74

Motor Model	Gearbox Model	Gear Ratio	36	40	50	60	75	90	100	120	150	180	200	250	300	360
		r/min	83	75	60	50	40	33	30	25	20	17	15	12	10	8
8DCG*-25-30	8GBK□BMH	kgfcm	21.3	23.7	26.8	32.1	40.1	48.2	53.5	64.2	80.0	80.0	80.0	80.0	80.0	80.0
		N.m	2.09	2.32	2.62	3.15	3.93	4.72	5.25	6.29	7.84	7.84	7.84	7.84	7.84	7.84

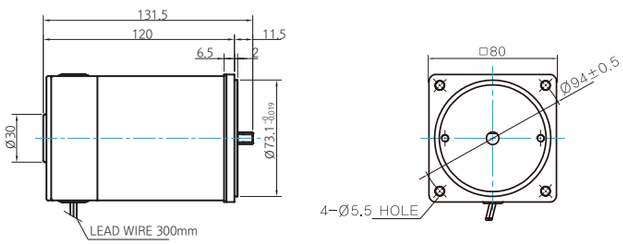
Motor Model	Gearbox Model	Gear Ratio	10	12	15	18	25	30	36	50	60
		r/min	300	250	200	167	120	100	83	60	50
8DCW*-25-30	8WD□BL/□BR/□BRL	kgfcm	6.7	7.8	9.4	10.8	14.2	16.1	18.7	24.3	26.8
		N.m	0.65	0.76	0.92	1.06	1.39	1.57	1.83	2.38	2.62

1) Enter the voltage code in the place * within the motor model name.
2) Enter the gear ratio in the place ◇ 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.

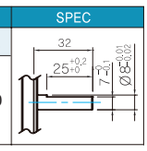
Dimensions

MOTOR ONLY

● MOTOR MODEL: 8DC□□-25-30

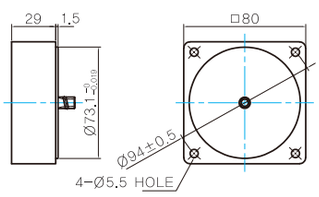


● MOTOR OUTPUT SHAFT

MODEL	SPEC
D-CUT TYPE	
8DCD□-25-30	

INTER-DECIMAL GEARBOX

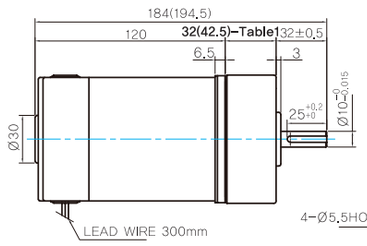
● MODEL: 8XD10□□



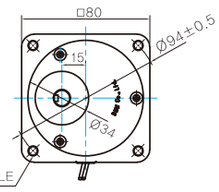
GEARED MOTOR

G TYPE GEARBOX

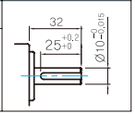
● MOTOR MODEL:
8DCG□-25-30



● GEARBOX MODEL:
8GBK□BMH



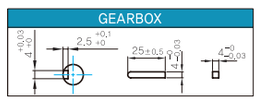
● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	
8GBK□BMH	

● 32(42.5)-Table1

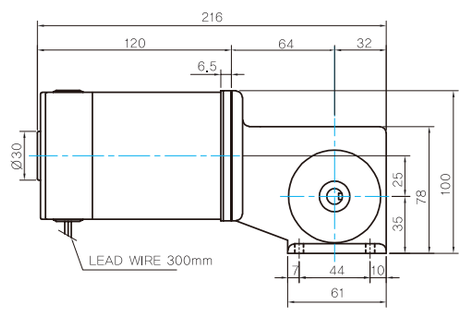
SIZE(mm)	GEAR RATIO
32	8GBK3BMH – 8GBK18BMH
42.5	8GBK20BMH – 8GBK360BMH

● KEY SPEC

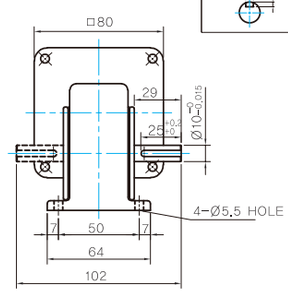


W TYPE GEARBOX

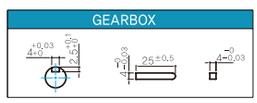
● MOTOR MODEL:
8DCW□-25-30



● GEARBOX MODEL:
8WD□BL/BR/BRL



● KEY SPEC



WEIGHT

PART		WEIGHT(Kg)
MOTOR		1.65
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

8DCD□-25-30	8DCG□-25-30+8GBK□BMH	8DCW□-25-30+8WD□BL
		

40W DC Motor 40W(□80mm)

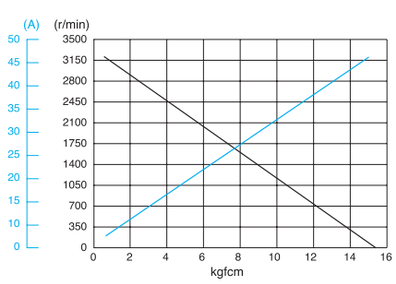
Motor Specification

Model 8DCG(W)*-40-30: Gear Type Shaft 8DCD*-40-30: D-Cut Type Shaft	Output	Voltage	No Load		Starting Torque		Starting Current	Rated Load			
			Speed	Current				Speed	Current	Torque	
	W	V	r/min	A	kgfcm	N.m	A	r/min	A	kgfcm	N.m
8DC◇12-40-30	40	12	3300	1.40	15.50	1.550	46.00	3000	4.80	1.30	0.130
8DC◇24-40-30	40	24	3150	0.60	25.00	2.500	43.00	3000	2.50	1.30	0.130
8DC◇90-40-30	40	90	3100	0.03	25.00	2.500	19.00	3000	0.55	1.30	0.130

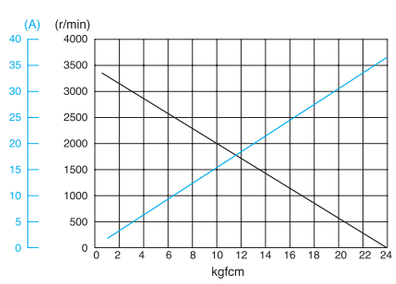
1) Enter the voltage code in the place * within the motor model name.
2) Enter the output shaft type of motor in the place ◇ within the motor model name.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft is for using the motor only.

Performance Curve

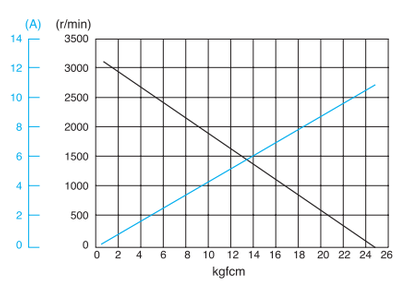
8DCG12-40-30



8DCG24-40-30



8DCG90-40-30



Max. Permissible Torque at Output Shaft of Gearbox

Motor Model	Gearbox Model	Gear Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
		r/min	1000	833	600	500	400	333	300	240	200	167	150	120	100
8DCG*-40-30	8GBK□BMH	kgfcm	3.2	3.8	5.3	6.3	7.9	9.5	10.5	13.2	15.8	19.0	19.0	23.7	28.5
		N.m	0.31	0.37	0.52	0.62	0.77	0.93	1.03	1.29	1.55	1.86	1.86	2.33	2.79

Motor Model	Gearbox Model	Gear Ratio	36	40	50	60	75	90	100	120	150	180	200	250	300	360
		r/min	83	75	60	50	40	33	30	25	20	17	15	12	10	8
8DCG*-40-30	8GBK□BMH	kgfcm	34.2	38.0	42.9	51.5	64.4	77.2	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
		N.m	3.35	3.72	4.20	5.05	6.31	7.57	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84

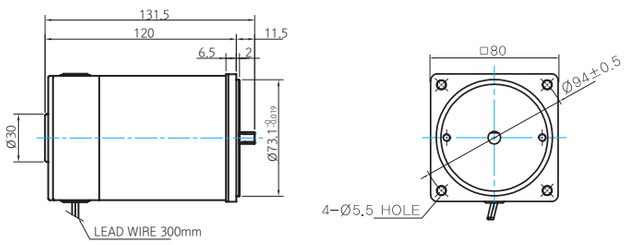
Motor Model	Gearbox Model	Gear Ratio	10	12	15	18	25	30	36	50	60
		r/min	300	250	200	167	120	100	83	60	50
8DCW*-40-30	8WD□BL/□BR/□BRL	kgfcm	10.7	12.5	15.0	17.3	22.8	25.7	30.0	39.0	42.9
		N.m	1.04	1.22	1.47	1.70	2.23	2.52	2.94	3.82	4.20

1) Enter the voltage code in the place * within the motor model name.
2) Enter the gear ratio in the place ◇ 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.

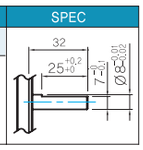
Dimensions

MOTOR ONLY

● MOTOR MODEL: 8DC□□-40-30

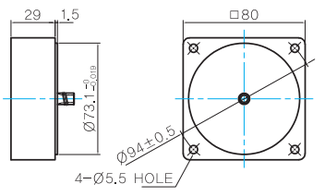


● MOTOR OUTPUT SHAFT

MODEL	SPEC
D-CUT TYPE	
8DCD□-40-30	

INTER-DECIMAL GEARBOX

● MODEL: 8XD10□□

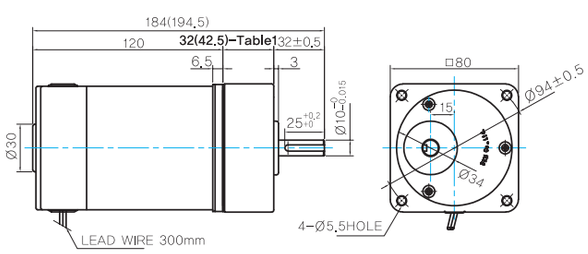


GEARED MOTOR

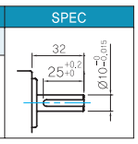
G TYPE GEARBOX

● MOTOR MODEL: 8DCG□-40-30

● GEARBOX MODEL: 8GBK□BMH



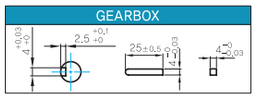
● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	
8GBK□BMH	

● 32(42.5)-Table1

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

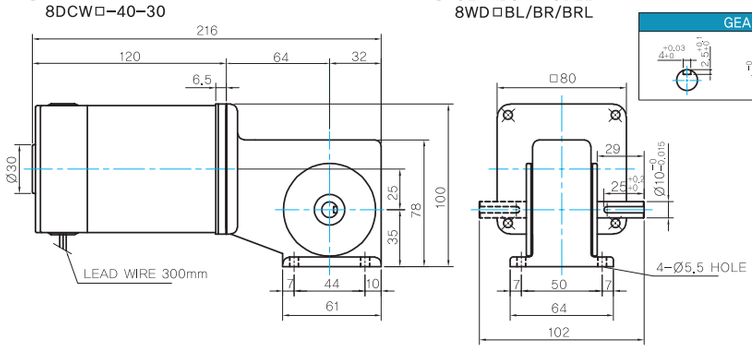
● KEY SPEC



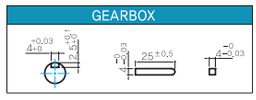
W TYPE GEARBOX

● MOTOR MODEL: 8DCW□-40-30

● GEARBOX MODEL: 8WD□BL/BR/BRL



● KEY SPEC



WEIGHT

PART		WEIGHT(Kg)
MOTOR		1.7
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

8DCD□-40-30	8DCG□-40-30+8GBK□BMH	8DCW□-40-30+8WD□BL
		

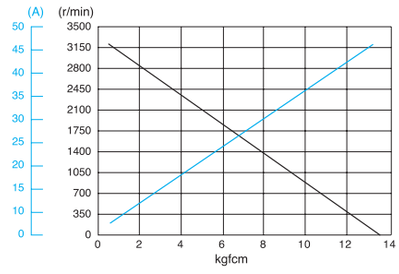
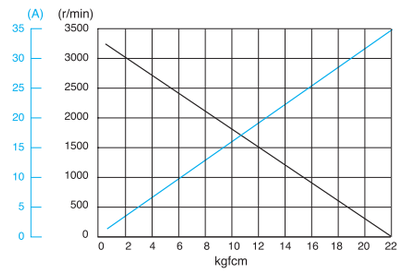
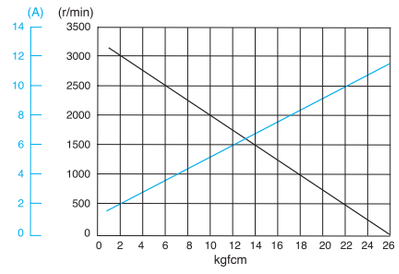
60W DC Motor 60W(□90mm)

Motor Specification

Model 9DCP(W)*-60-30: Gear Type Shaft 9DCD*-60-30: D-Cut Type Shaft 9DCK*-60-30: Key Type Shaft	Output	Voltage	No Load		Starting Torque		Starting Current	Rated Load			
			Speed	Current				Speed	Current	Torque	
	W	V	r/min	A	kgfcm	N.m	A	r/min	A	kgfcm	N.m
9DC◇12-60-30	60	12	3250	2.50	21.00	2.100	65.00	3000	7.50	1.95	0.195
9DC◇24-60-30	60	24	3150	1.00	19.00	1.900	29.00	2800	3.50	1.95	0.195
9DC◇90-60-30	60	90	3100	0.25	27.30	2.730	11.00	2800	0.80	1.95	0.195

1) Enter the voltage code in the place * within the motor model name.
2) Enter the output shaft type of motor in the place ◇ within the motor model name.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft / Key Type Shaft are for using the motor only.

Performance Curve

9DCP12-60-30	9DCP24-60-30	9DCP90-60-30
		

Max. Permissible Torque at Output Shaft of Gearbox

Motor Model	Gearbox Model	Gear Ratio	2	3	3.6	5	6	7.5	9	10	12.5	15	18	20
		r/min	1500	1000	833	600	500	400	333	300	240	200	167	150
9DCP*-60-30	9PBK□BH 9PFK□BH	kgfcm	3.2	4.7	5.7	7.9	9.5	11.8	14.2	15.8	17.8	21.4	25.6	28.5
		N.m	0.31	0.46	0.56	0.77	0.93	1.16	1.39	1.55	1.74	2.09	2.51	2.79

Motor Model	Gearbox Model	Gear Ratio	25	30	36	40	50	60	75	90	100	120	150	180	200
		r/min	120	100	83	75	60	50	40	33	30	25	20	17	15
9DCP*-60-30	9PBK□BH 9PFK□BH	kgfcm	32.2	38.6	46.3	51.5	64.4	77.2	86.3	103.5	115.1	138.1	172.6	200.0	200.0
		N.m	3.15	3.78	4.54	5.05	6.31	7.57	8.46	10.15	11.27	13.53	16.91	19.60	19.60

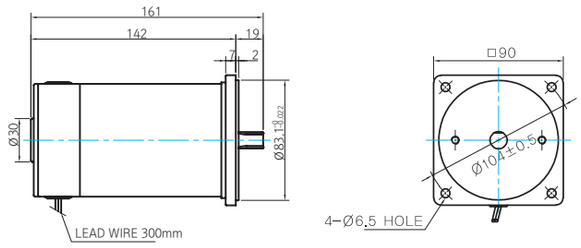
Motor Model	Gearbox Model	Gear Ratio	10	12	15	18	25	30	36	50	60
		r/min	300	250	200	167	120	100	83	60	50
9DCW*-60-30	9WD□BL/□BR/□BRL	kgfcm	16.0	18.7	22.5	26.0	34.1	38.6	44.9	58.5	64.4
		N.m	1.57	1.83	2.21	2.55	3.34	3.78	4.40	5.73	6.31

1) Enter the voltage code in the place * within the motor model name.
2) Enter the gear ratio in the place ◇ 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.

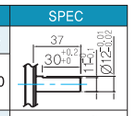
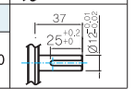
Dimensions

MOTOR ONLY

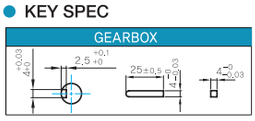
● MOTOR MODEL: 9DC□□−60−30



● MOTOR OUTPUT SHAFT

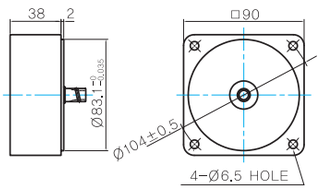
MODEL	SPEC
D-CUT TYPE	
9DCD□−60−30	
KEY TYPE	
9DCK□−60−30	

● KEY SPEC



INTER-DECIMAL GEARBOX

● MODEL: 9XD10□□



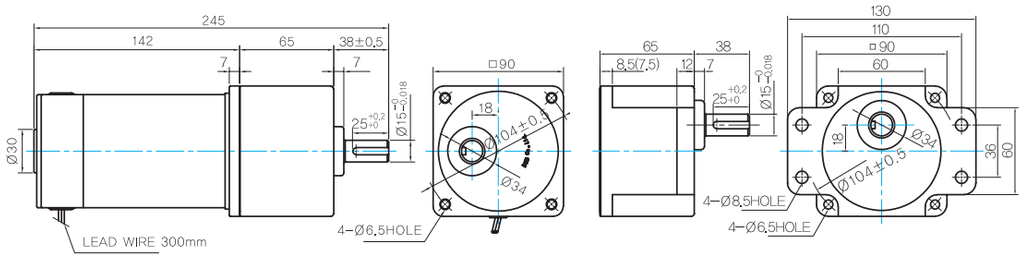
GEARED MOTOR

P TYPE GEARBOX

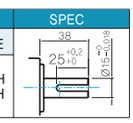
● MOTOR MODEL: 9DCP□−60−30

● GEARBOX MODEL: 9PBK□BH

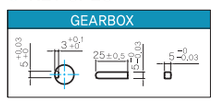
● GEARBOX MODEL: 9PFK□BH



● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	
9PBK□BH 9PFK□BH	

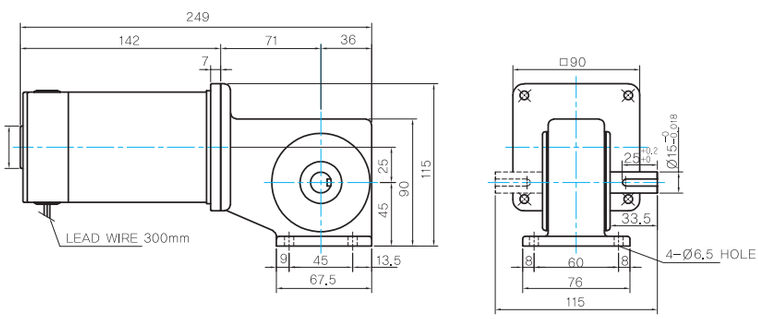
● KEY SPEC



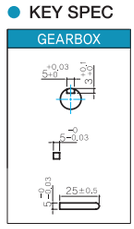
W TYPE GEARBOX

● MOTOR MODEL: 9DCW□−60−30

● GEARBOX MODEL: 9WD□BL/BR/BRL



● KEY SPEC



WEIGHT

PART		WEIGHT(Kg)
MOTOR		2.0
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
	9WD□BL/BR/BRL	1.0
	9XD10□□	0.6

Motor Images

9DCD□−60−30	9DCP□−60−30+9PBK□BH	9DCP□−60−30+9PFK□BH	9DCW□−60−30+9WD□BL
			

DC Motor 90W(□90mm)

90W DC Motor 90W(□90mm)

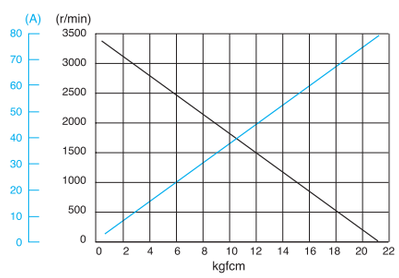
Motor Specification

Model 9DCP(W)*-90-30: Gear Type Shaft 9DCD*-90-30: D-Cut Type Shaft 9DCK*-90-30: Key Type Shaft	Output	Voltage	No Load		Starting Torque		Starting Current	Rated Load			
			Speed	Current				Speed	Current	Torque	
	W	V	r/min	A	kgfcm	N.m	A	r/min	A	kgfcm	N.m
9DC◇12-90-30	90	12	3400	3.50	21.00	2.100	67.00	3000	11.00	2.92	0.292
9DC◇24-90-30	90	24	3050	1.10	25.50	2.550	33.00	2700	5.00	2.92	0.292
9DC◇90-90-30	90	90	3200	0.30	31.90	3.190	14.50	3000	1.50	2.92	0.292

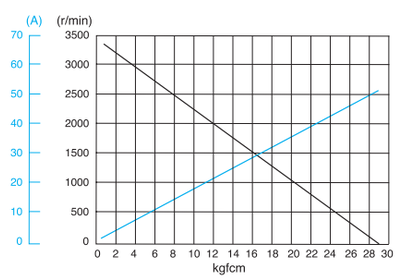
1) Enter the voltage code in the place * within the motor model name.
2) Enter the output shaft type of motor in the place ◇ within the motor model name.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft / Key Type Shaft are for using the motor only.

Performance Curve

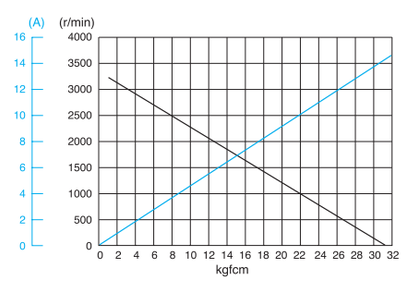
9DCP12-90-30



9DCP24-90-30



9DCP90-90-30



Max. Permissible Torque at Output Shaft of Gearbox

Motor Model	Gearbox Model	Gear Ratio	2	3	3.6	5	6	7.5	9	10	12.5	15	18	20
		r/min	1500	1000	833	600	500	400	333	300	240	200	167	150
9DCP*-90-30	9PBK□BH 9PFK□BH	kgfcm	4.7	7.1	8.5	11.8	14.2	17.7	21.3	23.7	26.6	32.0	38.4	42.6
		N.m	0.46	0.70	0.83	1.16	1.39	1.74	2.09	2.32	2.61	3.13	3.76	4.18

Motor Model	Gearbox Model	Gear Ratio	25	30	36	40	50	60	75	90	100	120	150	180	200
		r/min	120	100	83	75	60	50	40	33	30	25	20	17	15
9DCP*-90-30	9PBK□BH 9PFK□BH	kgfcm	48.2	57.8	69.4	77.1	96.4	115.6	129.2	155.1	172.3	200.0	200.0	200.0	200.0
		N.m	4.72	5.67	6.80	7.55	9.44	11.33	12.66	15.20	16.88	19.60	19.60	19.60	19.60

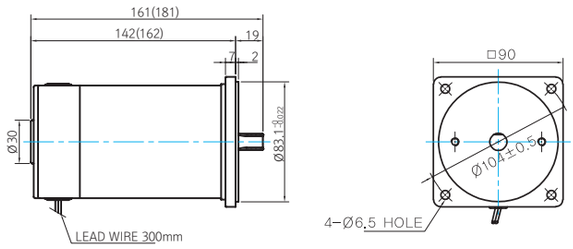
Motor Model	Gearbox Model	Gear Ratio	10	12	15	18	25	30	36	50	60
		r/min	300	250	200	167	120	100	83	60	50
9DCW*-90-30	9WD□BL/□BR/□BRL	kgfcm	23.9	28.0	33.7	38.9	51.1	57.8	67.3	87.6	96.4
		N.m	2.35	2.75	3.31	3.81	5.01	5.67	6.59	8.58	9.44

1) Enter the voltage code in the place * within the motor model name.
2) Enter the gear ratio in the place ◇ 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

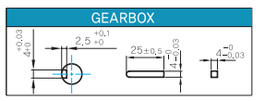
● MOTOR MODEL: 9DC□□−90−30



● MOTOR OUTPUT SHAFT

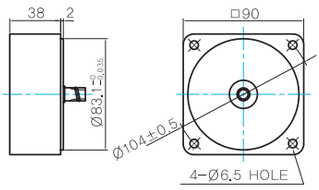
MODEL	SPEC
D-CUT TYPE	
9DCD□−90−30	
KEY TYPE	
9DCK□−90−30	

● KEY SPEC



INTER-DECIMAL GEARBOX

● MODEL: 9XD10□□



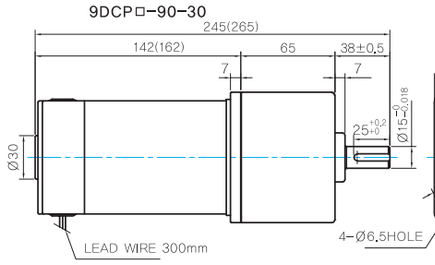
● 142(162)-Table1

SIZE(mm)	MOTOR VOLTAGE
142	24V,90V
162	12V

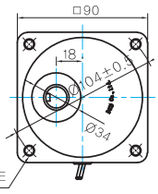
GEARED MOTOR

P TYPE GEARBOX

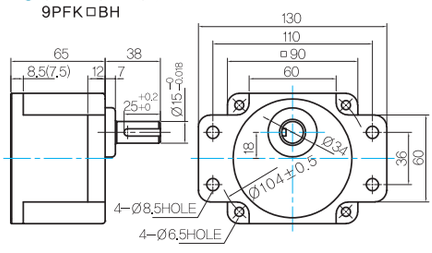
● MOTOR MODEL: 9DCP□−90−30



● GEARBOX MODEL: 9PBK□BH



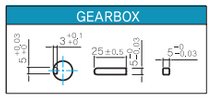
● GEARBOX MODEL: 9PFK□BH



● GEARBOX OUTPUT SHAFT

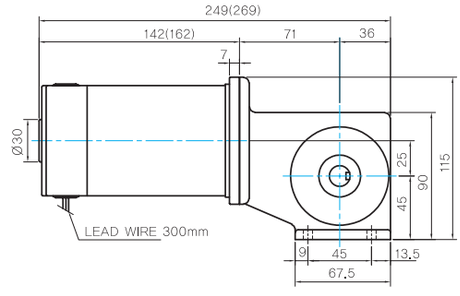
MODEL	SPEC
KEY TYPE	
9PBK□BH 9PFK□BH	

● KEY SPEC

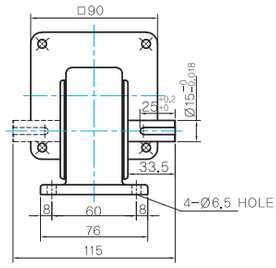


W TYPE GEARBOX

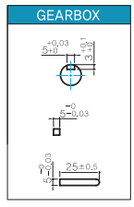
● MOTOR MODEL: 9DCW□−90−30



● GEARBOX MODEL: 9WD□BL/BR/BRL



● KEY SPEC



WEIGHT

PART		WEIGHT(Kg)
MOTOR		2.1
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
	9WD□BL/BR/BRL	1.0
	9XD10□□	0.6

Motor Images

9DCD□−90−30	9DCP□−90−30+9PBK□BH	9DCP□−90−30+9PFK□BH	9DCW□−90−30+9WD□BL
			

C DC Motors

DC Motor 120W(□90mm)

120W DC Motor 120W(□90mm)

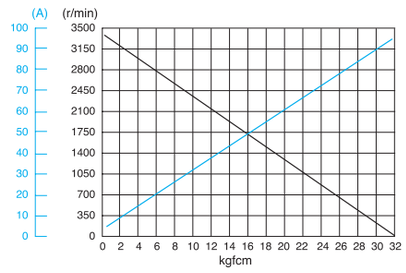
Motor Specification

Model 9DCP(W)*-120-30: Gear Type Shaft 9DCD*-120-30: D-Cut Type Shaft 9DCK*-120-30: Key Type Shaft	Output	Voltage	No Load		Starting Torque		Starting Current	Rated Load			
			Speed	Current				Speed	Current	Torque	
	W	V	r/min	A	kgfcm	N.m	A	r/min	A	kgfcm	N.m
9DC◇12-120-30	120	12	3400	3.50	25.00	2.500	75.00	3000	15.00	3.90	0.390
9DC◇24-120-30	120	24	3050	1.30	34.00	3.400	62.00	2800	7.20	3.90	0.390
9DC◇90-120-30	120	90	3400	0.50	34.00	3.400	18.00	3000	2.00	3.90	0.390

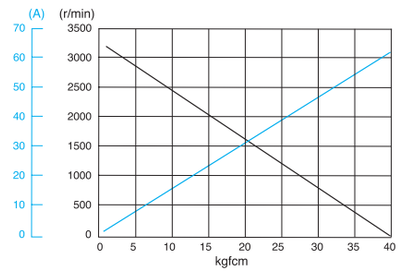
1) Enter the voltage code in the place * within the motor model name.
2) Enter the output shaft type of motor in the place ◇ within the motor model name.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft / Key Type Shaft are for using the motor only.

Performance Curve

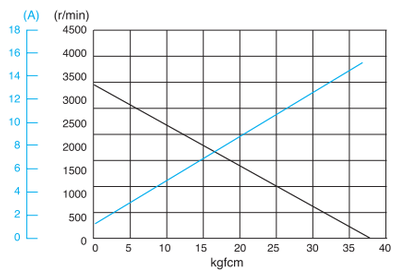
9DC□12-120-30



9DC□24-120-30



9DC□90-120-30



Max. Permissible Torque at Output Shaft of Gearbox

Motor Model	Gearbox Model	Gear Ratio	2	3	3.6	5	6	7.5	9	10	12.5	15	18	20
		r/min	1500	1000	833	600	500	400	333	300	240	200	167	150
9DCP*-120-30	9PBK□BH 9PFK□BH	kgfcm	6.3	9.5	11.4	15.8	19.0	23.7	28.4	31.6	35.6	42.7	51.2	56.9
		N.m	0.62	0.93	1.11	1.55	1.86	2.32	2.79	3.10	3.49	4.19	5.02	5.58

Motor Model	Gearbox Model	Gear Ratio	25	30	36	40	50	60	75	90	100	120	150	180	200
		r/min	120	100	83	75	60	50	40	33	30	25	20	17	15
9DCP*-120-30	9PBK□BH 9PFK□BH	kgfcm	64.4	77.2	92.7	103.0	128.7	154.4	172.6	200.0	200.0	200.0	200.0	200.0	200.0
		N.m	6.31	7.57	9.08	10.09	12.61	15.14	16.91	19.60	19.60	19.60	19.60	19.60	19.60

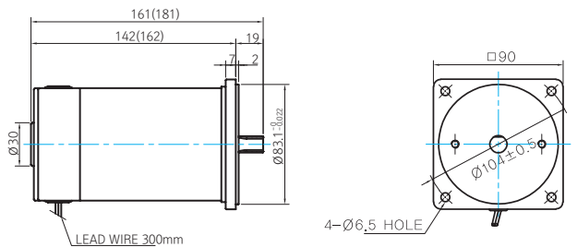
Motor Model	Gearbox Model	Gear Ratio	10	12	15	18	25	30	36	50	60
		r/min	300	250	200	167	120	100	83	60	50
9DCW*-120-30	9WD□BL/□BR/□BRL	kgfcm	32.0	37.4	45.0	51.9	68.3	77.2	89.9	117.0	122.4
		N.m	3.13	3.67	4.41	5.09	6.69	7.57	8.81	11.47	12.00

1) Enter the voltage code in the place * within the motor model name.
2) Enter the gear ratio in the place ◇ 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

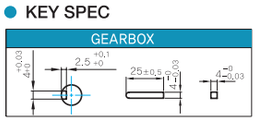
● MOTOR MODEL: 9DC□□–120–30



● MOTOR OUTPUT SHAFT

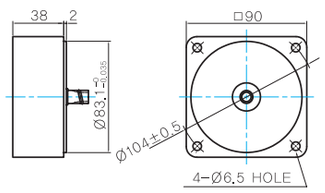
MODEL	SPEC
D-CUT TYPE	
9DCD□–120–30	
KEY TYPE	
9DCK□–120–30	

● KEY SPEC



INTER-DECIMAL GEARBOX

● MODEL: 9XD10□□



● 142(162)-Table1

SIZE(mm)	MOTOR VOLTAGE
142	24V,90V
162	12V

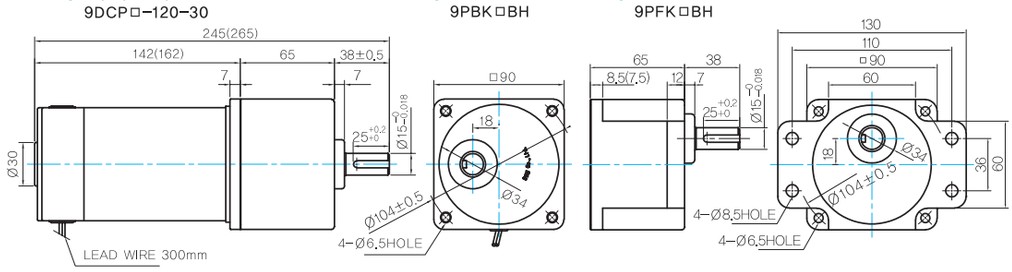
GEARED MOTOR

P TYPE GEARBOX

● MOTOR MODEL: 9DCP□–120–30

● GEARBOX MODEL: 9PBK□BH

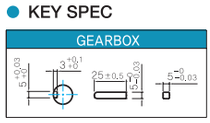
● GEARBOX MODEL: 9PFK□BH



● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	
9PBK□BH 9PFK□BH	

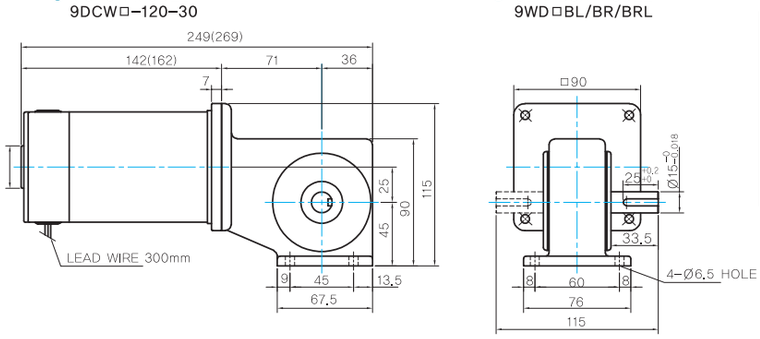
● KEY SPEC



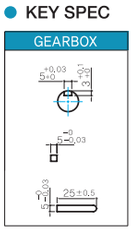
W TYPE GEARBOX

● MOTOR MODEL: 9DCW□–120–30

● GEARBOX MODEL: 9WD□BL/BR/BRL



● KEY SPEC



WEIGHT

PART		WEIGHT(Kg)
MOTOR		2.1
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
	9WD□BL/BR/BRL	1.0
	9XD10□□	0.6

Motor Images

9DCD□–120–30	9DCP□–120–30+9PBK□BH	9DCP□–120–30+9PFK□BH	9DCW□–120–30+9WD□BL
			

200W DC Motor 200W(□90mm)

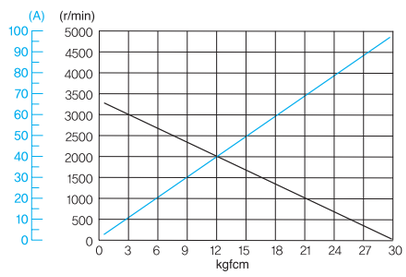
Motor Specification

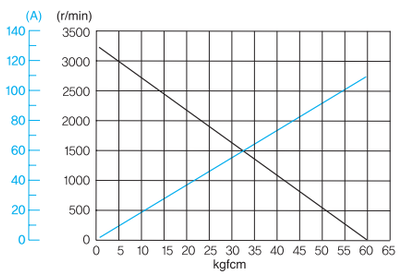
Model 9DCH*-200-30: Gear Type Shaft 9DCD*-200-30: D-Cut Type Shaft 9DCK*-200-30: Key Type Shaft	Output	Voltage	No Load		Starting Torque		Starting Current	Rated Load			
			Speed	Current				Speed	Current	Torque	
	W	V	r/min	A	kgfcm	N.m	A	r/min	A	kgfcm	N.m
9DC◇12-200-30	200	12	3300	5.00	30.00	3.000	98.00	2800	28.00	6.95	0.695
9DC◇24-200-30	200	24	3400	2.00	57.50	5.750	105.00	3000	13.00	6.50	0.650
9DC◇90-200-30	200	90	3400	0.50	48.00	4.800	28.00	3000	3.50	6.50	0.650

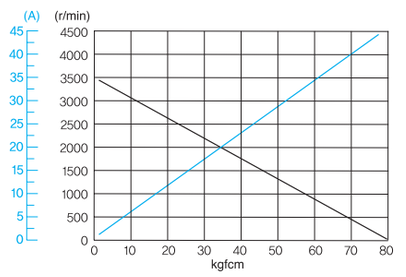
1) Enter the voltage code in the place * within the motor model name.
2) Enter the output shaft type of motor in the place ◇ within the motor model name.
3) Gear Type Shaft is for attaching a gearbox and D-Cut Type Shaft / Key Type Shaft are for using the motor only.

Performance Curve

9DCH12-200-30	9DCH24-200-30	9DCH90-200-30







Max. Permissible Torque at Output Shaft of Gearbox

Motor Model	Gearbox Model	Gear Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
		r/min	1000	833	600	500	400	333	300	240	200	167	150	120
9DCH*-200-30	9HBK□BH 9HFK□BH	kgfcm	15.8	19.0	26.3	31.6	39.5	47.4	52.7	59.3	71.2	85.4	94.9	107.3
		N.m	1.55	1.86	2.58	3.10	3.87	4.64	5.16	5.81	6.98	8.37	9.30	10.51

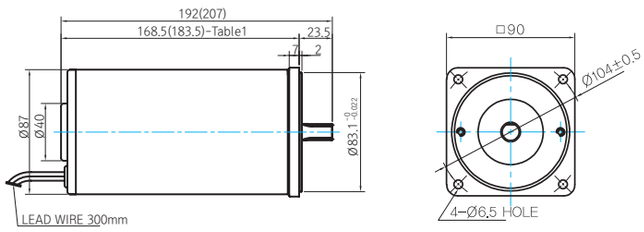
Motor Model	Gearbox Model	Gear Ratio	30	36	40	50	60	75	90	100	120	150	180	200
		r/min	100	83	75	60	50	40	33	30	25	20	17	15
9DCH*-200-30	9HBK□BH 9HFK□BH	kgfcm	128.7	154.4	171.6	214.5	257.4	300.0	300.0	300.0	300.0	300.0	300.0	300.0
		N.m	12.61	15.14	16.82	21.02	25.23	29.40	29.40	29.40	29.40	29.40	29.40	29.40

1) Enter the voltage code in the place * within the motor model name.
2) Enter the gear ratio in the place ◇ 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.

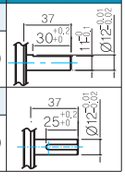
Dimensions (12 / 24V)

MOTOR ONLY

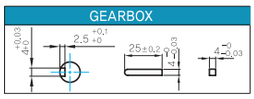
● MOTOR MODEL: 9DC□□-200-30



● MOTOR OUTPUT SHAFT

MODEL	SPEC
D-CUT TYPE 9DCD□-200-30	
KEY TYPE 9DCK□-200-30	

● KEY SPEC

GEARBOX


● 168.5(183.5)-Table1

SIZE(mm)	MOTOR VOLTAGE
168.5	24V
183.5	12V

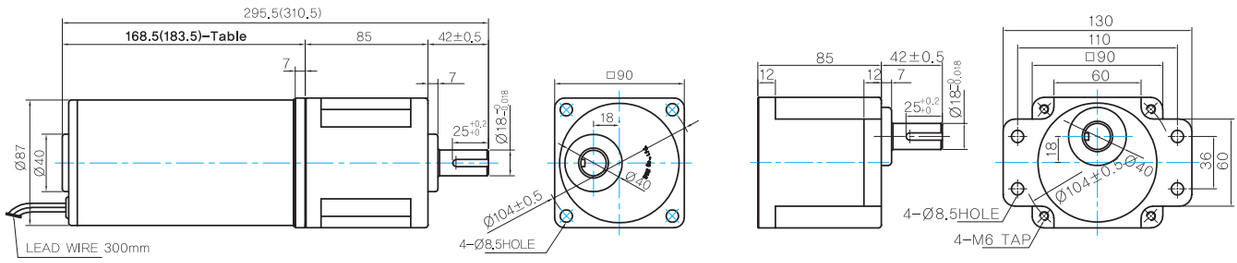
GEARED MOTOR

H TYPE GEARBOX

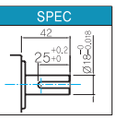
● MOTOR MODEL:
9DCH□-200-30

● GEARBOX MODEL:
9HBK□BH

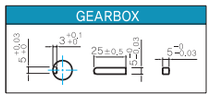
● GEARBOX MODEL:
9HFK□BH



● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● KEY SPEC

GEARBOX


WEIGHT

PART		WEIGHT(Kg)
MOTOR	9DCD12-200-30	3.8
	9DCD24-200-30	3.55
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
	9XD10□□	0.6

* The output flange and shaft are sold separately

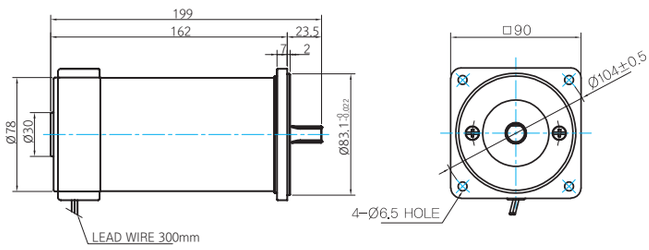
C DC Motors

DC Motor 200W(□ 90mm)

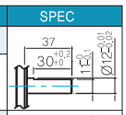
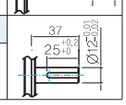
Dimensions (90V)

MOTOR ONLY

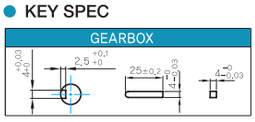
● MOTOR MODEL: 9DC□90-200-30



● MOTOR OUTPUT SHAFT

MODEL	SPEC
D-CUT TYPE	
9DCD90-200-30	
KEY TYPE	
9DCK90-200-30	

● KEY SPEC



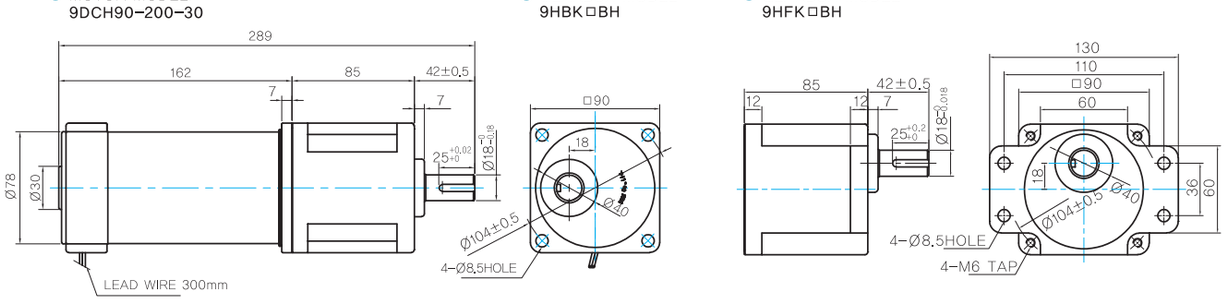
GEARED MOTOR

H TYPE GEARBOX

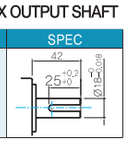
● MOTOR MODEL: 9DCH90-200-30

● GEARBOX MODEL: 9HBK□BH

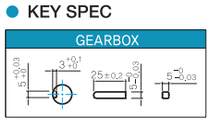
● GEARBOX MODEL: 9HFK□BH



● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● KEY SPEC



WEIGHT

PART		WEIGHT(Kg)
MOTOR	9DCD90-200-30	2.85
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
	9XD10□□	0.6

* The output flange and shaft are sold separately

Motor Images

9DCD□-200-30	9DCH□-200-30+9HBK□BH	9DCH□-200-30+9HFK□BH
		

DSD-90 Speed Controller

Features

- DSD-90 is for adjusting the speed of DC motor. (Applicable to DC 90V)
- Easy speed adjustment by potentiometer on front panel

General Specifications

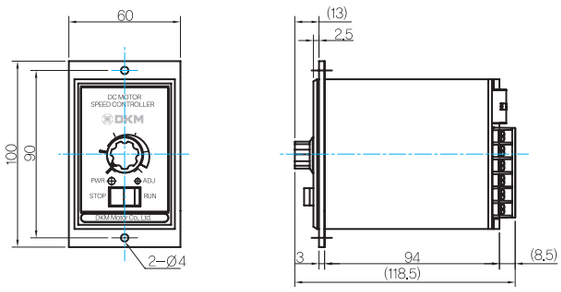
Item	DSD-90
Rated Voltage	AC 220V 50/60Hz
Voltage Regulation	±10%
Allowable Current	Below 4A
Control System	Phase control
Speed control	Operate with dial
Motor Output	15W ~ 200W
Ambient Temperature	-10℃ ~ 40℃
Ambient Humidity	35~85%RH
Insulation Resistance	Over 100MΩ(Base on 500VDC mega)
Dielectric Strength	1500VAC 50/60 for 1minute

Images

DC Motor 90V	DSD-90
	

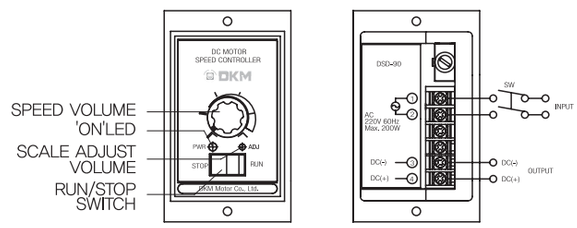
Dimensions

DSD-90

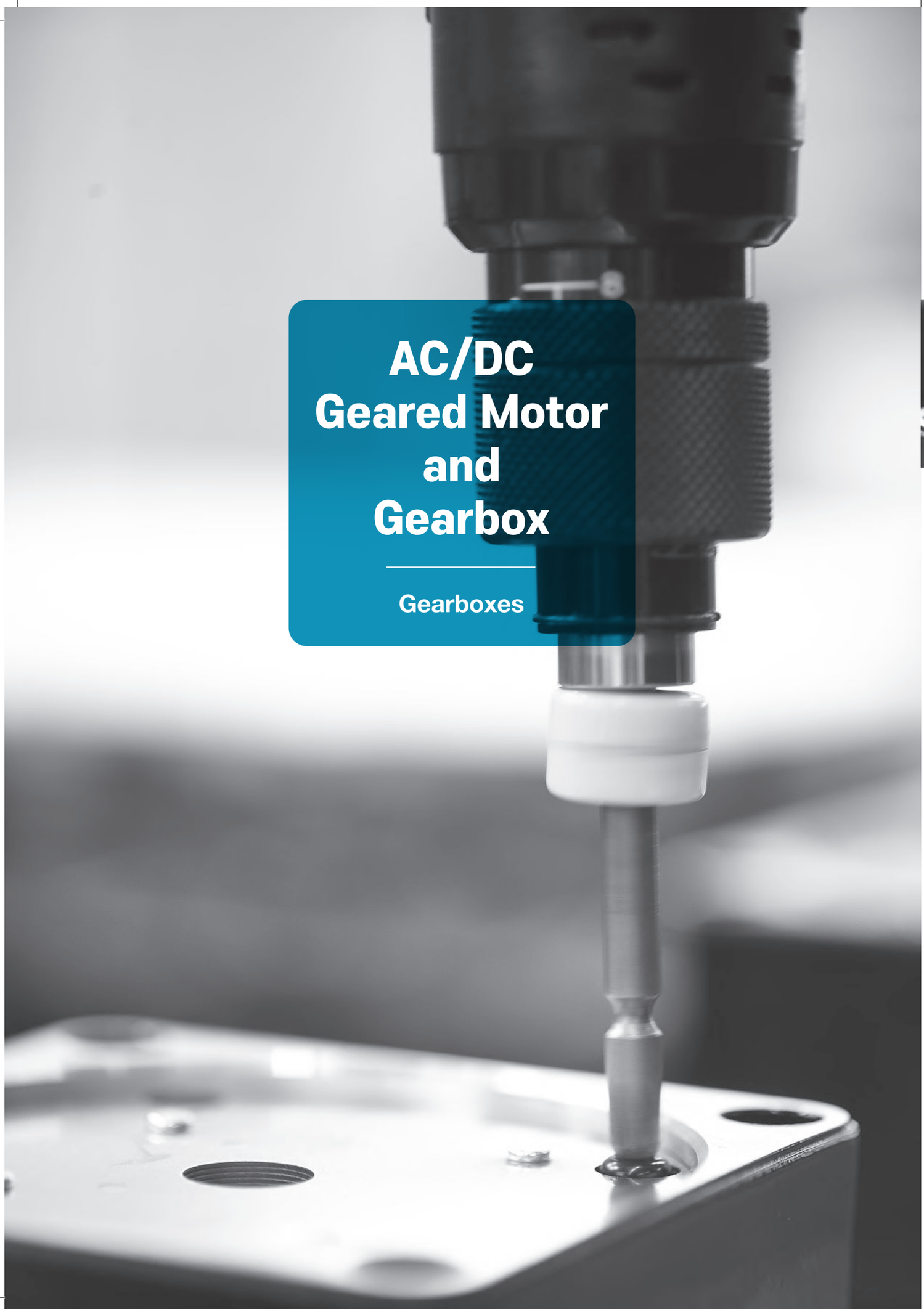


Connection Diagram

DSD-90



1) when the motor is operated, the temperature of the motor surface should be below 80℃.
2) It takes time to reverse the direction. Please reverse the direction after switch off the machine and the motor stops completely.
3) Depending on the torque load, Voltage Drop(VD) can occur.
4) ADJ is set based on 220V 60Hz, so please contact us if there is any change in the input voltage used. (Output DC 90V at input AC 220V 60Hz)



AC/DC Geared Motor and Gearbox

Gearboxes

Contents

D Gearboxes

Technical Data of Gearbox

Definition and Function of Gearbox

It is a speed converter using gears and an instrumental device to reduce the rpm of the motor into the required rpm and get a bigger torque.

Types of DKM Gearboxes

According to Frame Size

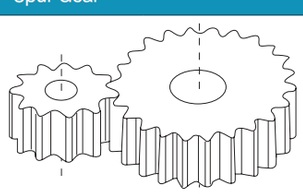
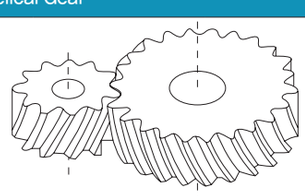
Frame Size ▫60mm Gearbox / Frame Size ▫70mm Gearbox / Frame Size ▫80mm Gearbox / Frame Size ▫90mm Gearbox / Frame Size ▫104mm Gearbox

According to Direction of Output Shaft of Gearbox

Parallel Gearbox

Parallel Gearbox is the most common type in the small geared motor. DKM Motor employs spur type and helical type. Especially the helical gear is employed for low-noise and high-strength performance. Regarding noise, the important part of the gear is the contacting point with a motor shaft that rotates rapidly. DKM employed helical gear which cut high precisely at that point and realized low-noise performance.

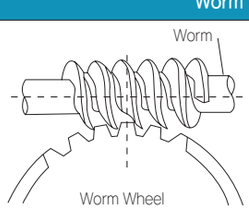
General Box Type (GB Type)	Powerful Box Type (PB Type)	Powerful Flange Type (PF Type)	High Powerful Box Type (HB Type)	High Powerful Flange Type (HF Type)	Ultra Powerful Box Type (UB Type)	Inter-decimal Gearbox
						

Spur Gear	Helical Gear
The spur gear is cylindrical gear on which the teeth are cut parallel to the shaft. 	The helical gear has teeth cut in helical curve. Its high rate of contact has the advantages of low noise and higher strength compared to the spur gear. 

Right-Angle Gearbox

Right-Angle Gearbox has the advantage of using the limited space with high efficiency and realizes the cost saving effect by the reduction of using power transmission part like coupling. DKM has worm solid type, worm hollow type and helicross type.

Worm Solid Type (W Type, Left Output Shaft)	Worm Solid Type (W Type, Right Output Shaft)	Worm Solid Type (W Type, Bi-Directional Output Shaft)	Worm Hollow Type (WH Type)	Helicross Type (HC Type)
				

Worm wheel	Helicross gear
 Worm Gear transmits power to right-angle direction by threaded worm and worm wheel.	

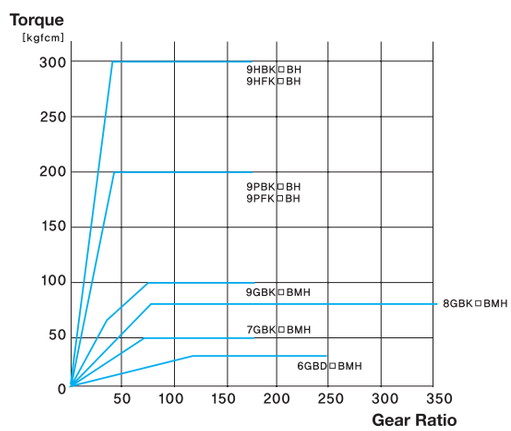
List of Gearbox Type

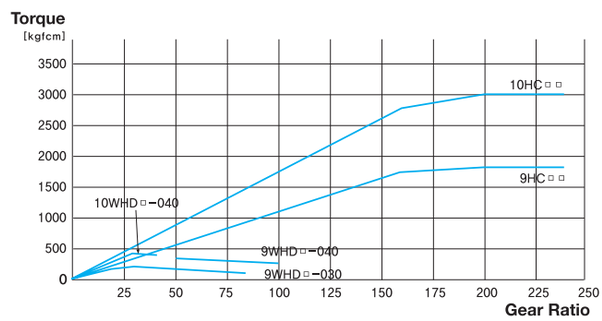
Type		Motor Output	Gearbox Model	Bearing Type	Frame Type
Parallel Gearbox	G Type (General)	6W	6GBD□MH	Metal Bearing	Box Type
		6W, 10W, 15W	7GBK□BMH	Ball Bearing + Metal Bearing	Box Type
		15W, 25W, 40W	8GBK□BMH	Ball Bearing + Metal Bearing	Box Type
		40W	9GBK□BMH	Ball Bearing + Metal Bearing	Box Type
	P Type (Powerful)	40~120W	9PBK□BH	Ball Bearing	Box Type
			9PFK□BH	Ball Bearing	Flange Type
	H Type (High Powerful)	60~200W	9HBK□BH	Ball Bearing	Box Type
			9HFK□BH	Ball Bearing	Flange Type
	U Type (Ultra Powerful)	250W, 300W, 400W	10UBK□BH	Ball Bearing	Box Type
Right-Angle Gearbox	W Type (Worm Solid)	15~40W	8WD□BL/BR/BRL	Ball Bearing	–
		40~120W	9WD□BL/BR/BRL	Ball Bearing	–
	WH Type (Worm Hollow)	60~200W	9WHD□-030	Ball Bearing	–
		150~200W	9WHD□-040	Ball Bearing	–
		250W, 300W 400W	10WHD□-040	Ball Bearing	–
	HC Type	90~200W	9HC□□	Ball Bearing	–
		250W, 300W, 400W	10HC□□	Ball Bearing	–
Inter-decimal Gearbox		15~40W	8XD10□□	Metal Bearing	Box Type
		40~200W	9XD10□□	Ball Bearing	Box Type

Maximum Permissible Torque and Efficiency of Gearbox

The output torque of gearbox is in proportion to the gear ratio. But there is limit in the size of load which can be applied to the gearbox in specific gear ratio depending on gear construction and materials etc. affecting the gearbox mechanical strength. This torque is called the maximum permissible torque. Two types of maximum permissible torque of general gearboxes are shown in the figure.

Max. Permissible Torque of Parallel Gearbox	Max. Permissible Torque of Worm Gearbox





- The calculation of permissible torque at the output shaft of the gearbox is as below:

$$TG = TM \times i \times \eta$$

TG: Output torque of Gearbox TM: Motor torque i: Gear reduction ratio η: Gearbox effciency

D Gearboxes

Technical Data of Gearbox

● Effciency of Parallel Gearbox

Model \ Ratio	2	3	3.6	5	6	7.5	9	10	13	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200	250	300	360
6GBD□MH 7GBK□BMH 8GBK□BMH 9GBK□BMH	81%											73%					66%											
9PB(F)K□BH 9HB(F)K□BH	81%											73%			66%				59%									
10UBK□BH	81%											73%			66%				59%									

*The effciency of inter-decimal gearbox (8XD10M□, 9XD10M□) is 81%.

● Effciency of Right-Angle Gearbox

Model \ Ratio	5	7.5	10	12	15	18	20	25	30	36	40	50	60	80	100
9WHD□-030 9WHD□-040 10WHD□-040	60%								55%						

Model \ Ratio	15	20	25	30	40	50	60	80	100	120	160	200	225	240
9HC□□ 10HC□□	66%	73%						66%						

Speed and Direction of Rotations

Speed

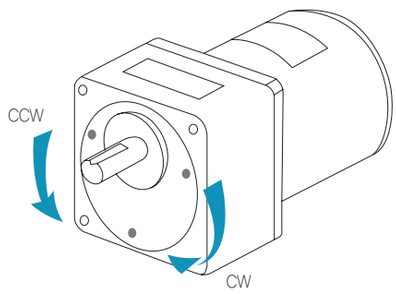
This refers to the speed of rotation at the gearbox output shaft. The speed is calculated by dividing the motor's synchronous speed by the gear ratio. The actual speed, according to the load condition, is 2~20% less than the displayed value.
The speed is calculated with the following equation:

$$NG = \frac{NM}{i} \text{ [r/min]}$$

NG: Speed of Gearbox [r/min]
NM: Speed of Motor [r/min]
i: Gear reduction ratio

Direction of Rotation

This refers to the direction of rotation viewed from the output shaft. The direction of shaft rotation may differ from motor shaft rotation depending on the gear ratio of the gearbox.



● Rotating Direction of Gearbox Output Shaft

Model \ 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	250	300	360
6GBD□MH/BH	–																										–	–
7GBK□BMH/BH	–																									–	–	–
8GBK□BMH/BH	–																											
9GBK□BMH/BH																										–	–	–
9PB(F)K□BMH/BH																										–	–	–
9HB(F)K□BMH/BH	–																									–	–	–
10UBK□BH	–		–		–	–			–		–				–				–						–	–	–	–

Model \ Ratio	15	20	25	30	40	50	60	80	100	120	160	200	225	240
9HC□□														
10HC□□														

– not available
same direction as the motor shaft
opposite direction from the motor shaft

* In case of using an inter-decimal gearbox, the rotating speed of output shaft will be reduce by 10:1 but the rotating direction is the same as the gearbox's direction.

Gearbox Life Expectancy and Service Factor

- The life expectancy of the gearbox varies depending on load fluctuation and is determined by the 'service factor' based on its load. Service factor is a coefficient that is used to estimate the service life of the gearbox. This value is generally derived from experience and based on the type of load and operating conditions. The standard life can be expected when the product is operated at service factor 1.0. The life of a component during a particular application is estimated by dividing the standard life expectancy by the service factor. For example, if the motor is operating with an ordinary load for 8 continuous hours a day, the service factor is 1.0. Thus, if the operation continues within the permissible torque for the gearbox and within the range of the prescribed temperature (letting the gearbox case temperature stay below 50℃), the life expectancy of the gearbox is 10,000 hours for the ball bearing type and 2,000 hours for the metal type. However, if a ball bearing type of gearbox is operating for 24 hours a day, the service factor becomes 1.5 so that the life expectancy decreases to 1/1.5. Therefore the service factor should be taken into account to select such a motor and a gearbox which have the biggest permissible torque.

- Example of Load and Service Factor

Type of Load	Service Factor			Operation Example
	5 hours/day	8 hours/day	24 hours/day	
Constant	0.8	1.0	1.5	Unidirectional, continuous run
Light impact/Changeable load	1.2	1.5	2.0	Frequent start/stop, reverse
Heavy impact	1.5	2.0	2.5	Very frequent start/stop, reverse

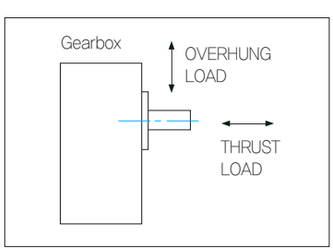
- Standard Life Expectancy

Ball Bearing Type*	5,000 hours
Metal Bearing Type	2,000 hours

* 5,000 hours when used on reversible motor

Overhung Load and Thrust Load

- The overhung load is defined as a load applied to the output shaft in the right-angle direction. This load is generated when the gearbox is coupled to the machine using a chain, belt, etc., but not when the gearbox is directly connected to the coupling. The thrust load is defined as a load applied to the output shaft of the gearbox in the axial direction.



- Since the overhung load exerts a load directly on the bearing, it affects the life span of the gearbox. The overhung load can be calculated from the following equation.

$$W = \frac{KxTxf}{r} \ [kg]$$

W: Overhung load [kg]
K: Weight coefficient by driving method
T: Delivery force of a gearbox output shaft [kgfcm]
f: Service factor
r: Effective radius of gear, pulley, etc. [cm]

Load Coeffcient by Driving Method

Driving Method	K
Chain, Sprocket	1
Gear	1.25
V-Belt	1.5
Flat Belt	2.5

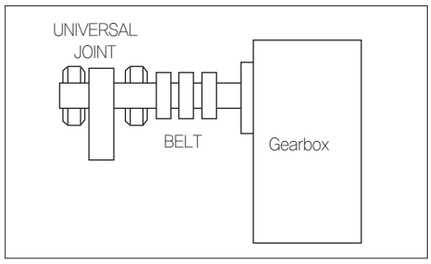
D Gearboxes

Technical Data of Gearbox

- If the motor operates with the calculated overhung load exceeding the maximum allowable value in the below table, the output shaft may bend and fatigue deformation may occur due to the repeated load. So consider it and take care in sizing.

Model	Gear Ratio	Maximum Permissible Torque (kgfcm)	Permissible Overhung Load (kg)	Permissible Thrust Load(kg)
6GBD □ MH	3 ~ 18	1~7	6	3
	25~250	7~30	15	
7GBK □ BMH	3 ~ 18	1~18	10	4
	20 ~ 200	5~50	20	
8GBK □ BMH	3 ~ 18	2~46	12	5
	20 ~ 360	13~80	24	
9GBK □ BMH	2 ~ 18	4~42	30	10
	20 ~ 200	36~100	37	
9PBK □ BH 9PFK □ BH	2 ~ 10	4~70	45	15
	12.5 ~ 20	22~126	52	
	25 ~ 200	40~200	60	
9HBK □ BH/9HFK □ BH	3 ~ 200	9~300	55	
10UBK □ BH	3 ~ 60	45~400	55	20
	90 ~ 180	400	65	
8WD □ BL/BR/BRL	10 ~ 18	8~42	8	–
	25 ~ 60	16~60	15	
9WD □ BL/BR/BRL	10 ~18	20~115	20	–
	25 ~ 60	43~122	25	
9WHD □ -030	5~80	13~205	100	–
9WHD □ -040	50 ~ 100	230~350	170	–
10WHD □ -040	5 ~ 40	65~395		
9HC □ □	15~60	60~656	220	–
	80~240	320~1800	320	–
10HC □ □	15~60	200~1067	280	–
	80~240	1067~3000	380	–

- In case the calculated overhung load value exceeds the allowable value above, please set up the structure of the motor as shown in the picture to withstand the overhung load.
- Also, if a load should be directly imposed on the output shaft, please place the load as near to the gearbox as possible to avoid the one-sided load.
- In case a helical gear or a worm gear is employed as an output delivery mechanism, make sure not to exceed both the overhung load and the thrust load simultaneously.



Backlash Noise of Gearbox

Operating Noise of Gearbox

The backlash noise can be indicated by operating noise value. DKM Gearbox's operating noise is like below.

Frame Size	Limit of Operating
70mm	40dB
80mm	42dB
90mm	49dB

Reference

i) Operating noise value is measured at a distance of 1m from the side of the gearbox.
ii) dB (decibel) is a unit of measurement which is used to indicate how loud a sound is.
iii) Level of operating noise (Ref. value)

- 20dB --- The sound of shaking leaves
- 30dB --- The sound in suburb of city in night time
- 40dB --- The sound in a silent park
- 50dB --- The sound in a silent offce

The Check Point of Gearbox Noise

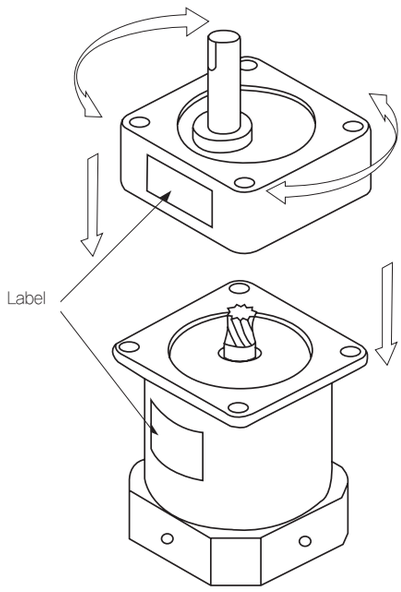
- **Noise under No Load**
  The backlash noise depends on the situation of load. For example, in case of rotation at no load, gear could pop and crash between them therefore there could be little vibration and it could cause noise. This noise can be restrained and controlled by carrying some friction load.

- **Noise when mounted with load**
  If a gearbox is not mounted on the bracket properly, there could be some noise by vibration caused by eccentric force. In this case, please check the mounting position.

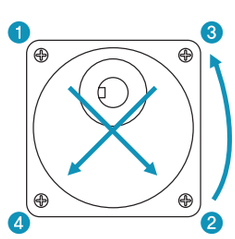
- **Noise of Damaged Gear**
  When attaching a gearbox to a motor, users have to turn the gearbox slowly according to the shape of the pinion. Otherwise, the gear could get damaged by the effect of overloading sequences. Also, there might be abnormal noise in the gearbox. So please handle the gearbox with special care in assembly.

Assembly Method of Motor and Gearbox

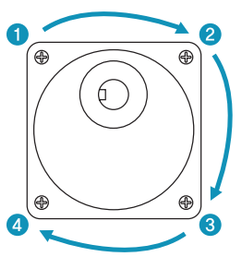
- To assemble the motor and the gearbox, adjust the assembling faces together in such a way as shown in the figure on the right and turn slowly to complete the assembly. When doing the assembly, special care should be taken neither to exert excessive force on the motor shaft nor to hit the inside of the gearbox. Otherwise, the gear will get damaged, resulting in an abnormal noise and a shortened lifetime of the motor.



- Use the provided mounting screws for assembly of the gearbox and the motor, and tighten the screws correctly. Be sure there is no-gab between motor flange, the gearbox surface and the mounting surface.



Correct



Wrong

D Gearboxes

Parallel Gearbox

G Type General Box Type Gearbox

60mm Model: 6GBD□MH Max. Permissible Torque

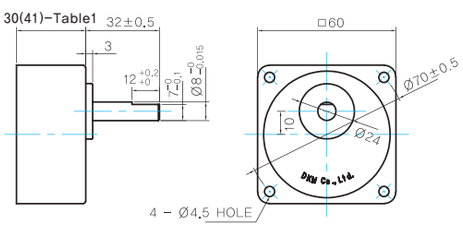
* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	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	250
	60Hz	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	7.2
	50Hz		500	417	300	250	200	166	150	120	100	83	75	60	50	41	37	30	25	20	16	15	12	10	8	7.5	6
6W	60Hz	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	30.0	30.0
	50Hz		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	30.0	30.0

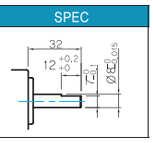
1) Enter the gear ratio in the box □ within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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.
4) Calculation of N.m ≒ kgfcm X 0.098

Dimensions

● Model: 6GBD□MH



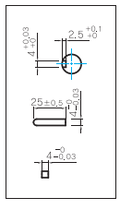
● GEARBOX OUTPUT SHAFT

MODEL	SPEC
D-CUT TYPE	

● 30(41)-Table1

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

● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
6GBD3MH ~ 6GBD18MH	0.30
6GBD20MH ~ 6GBD40MH	0.32
6GBD50MH ~ 6GBD250MH	0.34

70mm Model: 7GBK□BMH Max. Permissible Torque

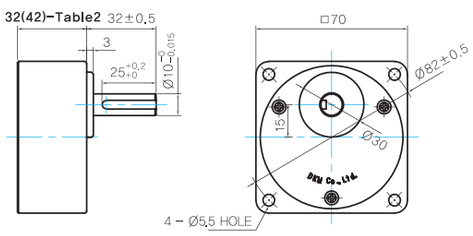
* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	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
	60Hz	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
	50Hz		500	417	300	250	200	167	150	120	100	83	75	60	50	42	38	30	25	20	17	15	12.5	10	8	7.5
6W	60Hz	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	48.2
	50Hz		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	50.0
10W	60Hz		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	50.0
	50Hz		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	50.0
15W	60Hz		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	50.0
	50Hz		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	50.0

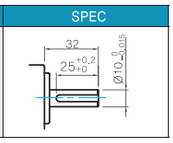
1) Enter the gear ratio in the box □ within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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.
4) Calculation of N.m ≒ kgfcm X 0.098

Dimensions

● Model: 7GBK□BMH



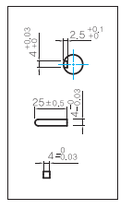
● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● 32(42)–Table2

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

● KEY SPEC



WEIGHT

Model	WEIGHT(Kg)
7GBK3BMH ~ 7GBK18BMH	0.38
7GBK20BMH ~ 7GBK40BMH	0.48
7GBK50BMH ~ 7GBK200MH	0.53

80mm Model: 8GBK□BMH Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

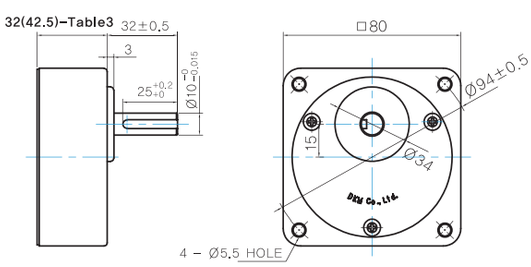
Motor Output	Gear Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
	60Hz	r/min	600	500	360	300	240	200	180	144	120	100	90	72	60
	50Hz		500	417	300	250	200	167	150	120	100	83	75	60	50
15W	60Hz	kgfcm	2.2	2.7	3.7	4.4	5.5	6.7	7.4	9.2	11.1	13.3	13.3	16.7	20.0
	50Hz		2.6	3.2	4.4	5.3	6.6	7.9	8.8	11.0	13.1	15.8	15.8	19.8	23.7
25W	60Hz		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
	50Hz		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
40W	60Hz		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
	50Hz		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

Motor Output	Gear Ratio		36	40	50	60	75	90	100	120	150	180	200	250	300	360
	60Hz	r/min	50	45	36	30	24	20	18	15	12	10	9	7	6	5
	50Hz		42	37.5	30	25	20	17	15	12.5	10	8	7.5	6	5	4
15W	60Hz	kgfcm	24.0	26.7	30.1	36.2	45.2	54.2	60.3	72.3	80.0	80.0	80.0	80.0	80.0	80.0
	50Hz		28.4	31.6	35.7	42.9	53.6	64.3	71.4	80.0	80.0	80.0	80.0	80.0	80.0	80.0
25W	60Hz		40.0	44.4	50.2	60.3	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	50Hz		47.4	52.7	59.5	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
40W	60Hz		66.2	73.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	50Hz		80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

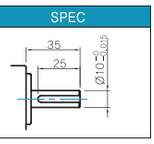
1) Enter the gear ratio in the box □ within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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.
4) Calculation of N.m ≒ kgfcm X 0.098

Dimensions

● Model: 8GBK□BMH



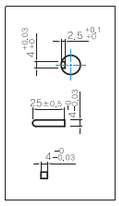
● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● 32(42.5)–Table3

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

● KEY SPEC



WEIGHT

Model	WEIGHT(Kg)
8GBK3BMH ~ 8GBK18BMH	0.56
8GBK20BMH ~ 8GBK40BMH	0.65
8GBK50BMH ~ 8GBK360BMH	0.72

D Gearboxes

Parallel Gearbox

90mm Model: 9GBK□BMH Max. Permissible Torque

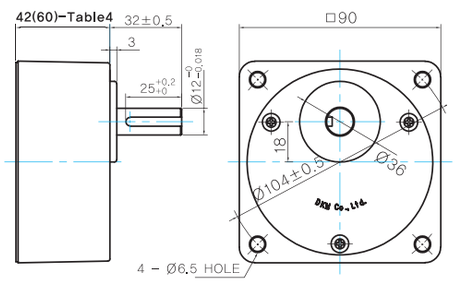
* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	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
	60Hz	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
	50Hz		750	500	417	300	250	200	167	150	120	100	83	75	60	50	42	38	30	25	20	17	15	13	10	8	7
40W	60Hz	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	100.0	100.0	100.0	100.0
	50Hz		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	100.0	100.0	100.0	100.0

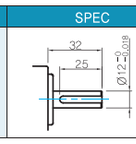
1) Enter the gear ratio in the box □ within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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.
4) Calculation of N.m ≒ kgfcm X 0.098

Dimensions

● Model: 9GBK□BMH



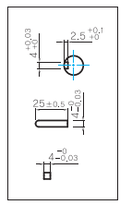
● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● 42(60)-Table4

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

● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
9GBK2BMH ~ 9GBK18BMH	0.78
9GBK20BMH ~ 9GBK40BMH	1.10
9GBK50BMH ~ 9GBK200BMH	1.20

Gearbox Image

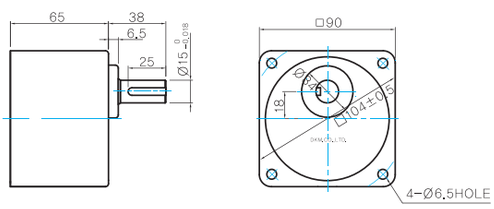
General Box Type

P Type

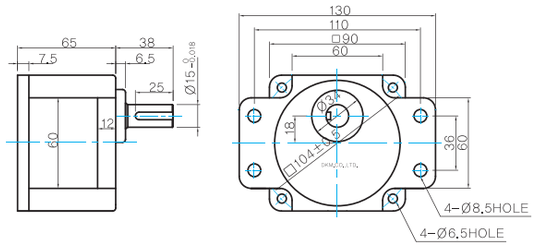
Powerful Box /
Flange Type Gearbox

Dimensions

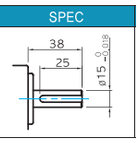
● Model: 9PBK□BH



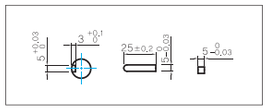
● Model: 9PFK□BH



● MOTOR OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● KEY SPEC



WEIGHT

Model	WEIGHT(Kg)
9PB(F)K2BH ~ 9PB(F)K10BH	1.28
9PB(F)K12.5BH ~ 9PB(F)K20BH	1.30
9PB(F)K25BH ~ 9PB(F)K60BH	1.45
9PB(F)K75BH ~ 9PB(F)K200BH	1.47

Gearbox Images

9PBK□BH

9PFK□BH

90mm Model: 9PBK□BH / 9PFK□BH Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	Gear Ratio		2	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	60Hz	r/min	900	600	500	360	300	240	200	180	144	120	100	90	72
	50Hz		750	500	417	300	250	200	167	150	120	100	83	75	60
40W	60Hz	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
	50Hz		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
60W	60Hz		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
	50Hz		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
90W	60Hz		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
	50Hz		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
120W	60Hz		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
	50Hz		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

Motor Output	Gear Ratio		30	36	40	50	60	75	90	100	120	150	180	200
	60Hz	r/min	60	50	45	36	30	24	20	18	15	12	10	9
	50Hz		50	42	37.5	30	25	20	17	15	12.5	10	8	7.5
40W	60Hz	kgfcm	48.2	57.9	64.3	80.4	96.4	107.7	129.3	143.7	172.4	200.0	200.0	200.0
	50Hz		57.1	68.6	76.2	95.2	114.3	127.7	153.2	170.3	200.0	200.0	200.0	200.0
60W	60Hz		72.3	86.8	96.4	120.5	144.6	161.6	193.9	200.0	200.0	200.0	200.0	200.0
	50Hz		85.7	102.9	114.3	142.9	171.4	191.6	200.0	200.0	200.0	200.0	200.0	200.0
90W	60Hz		108.5	130.2	144.6	180.8	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	50Hz		128.6	154.3	171.4	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
120W	60Hz		144.6	173.6	192.9	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	50Hz		171.4	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0

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.
4) Calculation of N.m ≒ kgfcm X 0.098

D Gearboxes

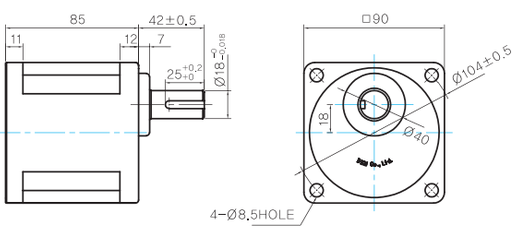
Parallel Gearbox

H Type

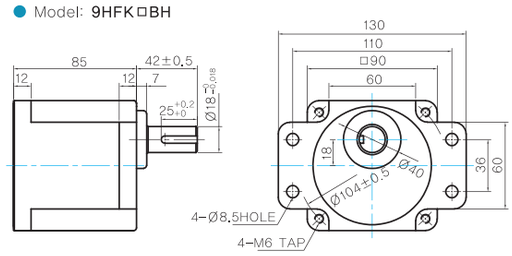
High Powerful Box /
Flange Type Gearbox

Dimensions

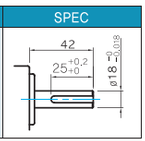
● Model: 9HBK□BH



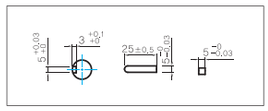
● Model: 9HFK□BH



● MOTOR OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● KEY SPEC



WEIGHT

Model	WEIGHT(Kg)
9HB(F)K3BH ~ 9HB(F)K10BH	1.59
9HB(F)K12.5BH ~ 9HB(F)K20BH	1.60
9HB(F)K25BH ~ 9HB(F)K60BH	1.70
9HB(F)K75BH ~ 9HB(F)K200BH	1.80

Gearbox Images

9HBK□BH

9HFK□BH

90mm Model: 9HBK□BH / 9HFK□BH Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

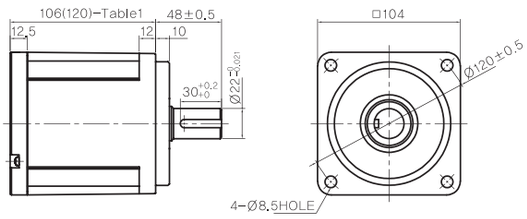
Motor Output	Gear Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	60Hz	r/min	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
	50Hz		500	417	300	250	200	167	150	120	100	83	75	60	50	42	37.5	30	25	20	17	15	12.5	10	8	7.5
60W	60Hz	kgfcm	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
	50Hz		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
90W	60Hz		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
	50Hz		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
120W	60Hz		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
	50Hz		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
150W	60Hz		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
	50Hz		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
180W	60Hz		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
	50Hz		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
200W	60Hz		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
	50Hz		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

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.
4) Calculation of N.m ≒ kgfcm X 0.098

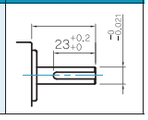
U Type Ultra Powerful Box / Flange Type Gearbox

Dimensions

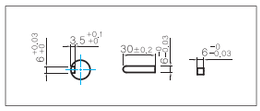
● Model: 10UBK□BH

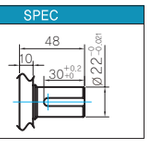


● MOTOR OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● KEY SPEC



MODEL	SPEC
KEY TYPE	
10UBK□BH	

WEIGHT

PART		WEIGHT(Kg)
GEAR BOX	10UBK3BH ~ 10UBK9BH	2.00
	10UBK10BH ~ 10UBK15BH	2.15
	10UBK20BH ~ 10UBK60BH	2.30
	10UBK90BH ~ 10UBK180BH	2.50

Gearbox Images

10UBK□BH

104mm Model: 10UBK□BH Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	Gear Ratio		3	5	9	10	15	20	25	30	40	50	60	90	100	120	150	180
	60Hz	r/min	600	360	200	180	120	90	72	60	45	36	30	20	18	15	12	10
	50Hz		500	300	167	150	100	75	60	50	37.5	30	25	16.7	15	12.5	10	8.3
250W	50Hz	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
300W	60Hz		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
	50Hz		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
400W	60Hz		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

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.
4) Calculation of N.m ≒ kgfcm X 0.098

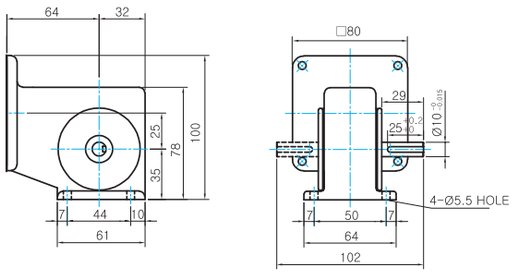
D Gearboxes

Right-Angle Gearbox

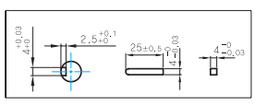
W Type Worm Solid Type Gearbox

Dimensions

● Model: 8WD□BL/BR/BRL



● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
8WD□BL/BR/BRL	0.68

80mm Model: 8WD□BL/□BR/□BRL Max. Permissible Torque

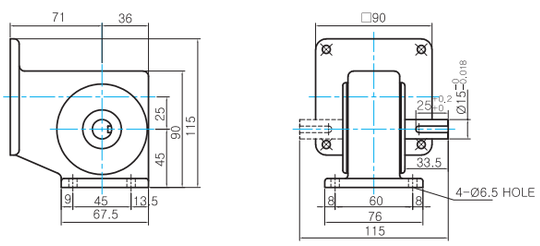
* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	Gear Ratio		10	12	15	18	25	30	36	50	60
	60Hz	r/min	180	150	120	100	72	60	50	36	30
	50Hz		150	125	100	83	60	50	42	30	25
15W	60Hz	kgfcm	9.8	11.5	13.9	16.0	21.0	23.8	27.6	36.0	39.6
	50Hz		11.5	13.4	16.2	18.6	24.5	27.7	32.3	42.0	46.2
25W	60Hz		14.8	17.3	20.8	24.0	31.5	35.6	41.5	54.0	59.4
	50Hz		18.0	21.1	25.4	29.3	38.5	43.6	50.7	66.0	72.6
40W	60Hz		20.7	24.2	29.1	33.6	44.1	49.9	58.1	60.0	60.0
	50Hz		25.6	30.0	36.0	41.6	54.6	60.0	60.0	60.0	60.0

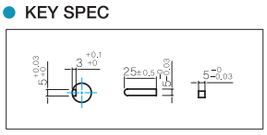
1) Enter the gear ratio in the box □ within the gearbox model name.
2) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio.
The actual speed is 2~20% less than the displayed value, depending on the size of the load.
3) Calculation of N.m ≒ kgfcm X 0.098

Dimensions

● Model: 9WD□BL/BR/BRL



● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
9WD□BL/BR/BRL	1.00

90mm Model: 9WD□BL/□BR/□BRL Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	Gear Ratio		10	12	15	18	25	30	36	50	60
	60Hz	r/min	180	150	120	100	72	60	50	36	30
	50Hz		150	125	100	83	60	50	42	30	25
40W	60Hz	kgfcm	20.0	23.4	28.1	32.4	42.6	48.2	56.1	73.1	80.4
	50Hz		23.7	27.7	33.3	38.4	50.5	57.1	66.5	86.6	95.2
60W	60Hz		30.0	35.1	42.2	48.7	63.9	72.3	84.2	109.6	120.5
	50Hz		35.5	41.6	50.0	57.7	75.8	85.7	99.7	129.9	122.4
90W	60Hz		44.9	52.6	63.3	73.0	95.9	108.5	126.2	142.9	122.4
	50Hz		53.2	62.3	75.0	86.5	113.6	128.6	149.6	142.9	122.4
120W	60Hz		59.9	70.1	84.4	97.3	127.8	144.6	153.1	142.9	122.4
	50Hz		71.0	83.1	100.0	115.3	151.5	170.0	153.1	142.9	122.4

1) Enter the gear ratio in the box □ within the gearbox model name.
2) 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.
3) Calculation of N.m ≒ kgfcm X 0.098

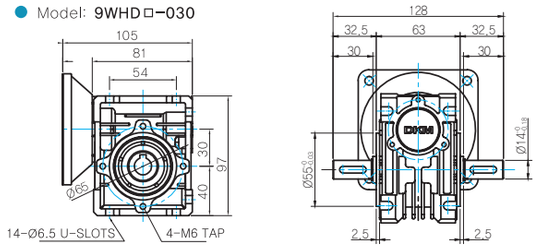
Gearbox Images

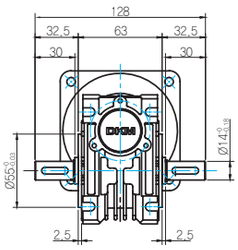
8(9)WD□BL	8(9)WD□BR	8(9)WD□BRL
		

WH Type Worm Hollow Type Gearbox

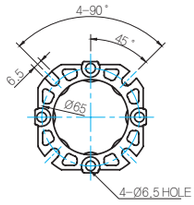
Dimensions

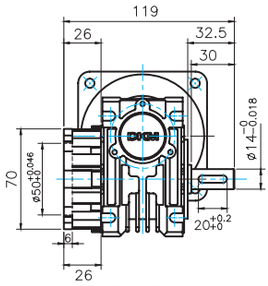
● Model: 9WHD□-030



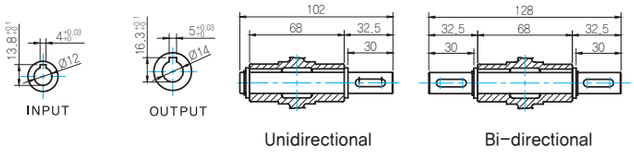


● FLANGE

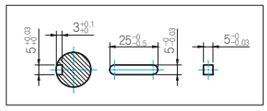




● SHAFT



● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
9WHD□-030	1.20

* The output flange and shaft are sold separately

90mm Model: 9WHD□-030 Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	Gear Ratio		5	7.5	10	15	20	25	30	40	50	60	80
	60Hz	r/min	360	240	180	120	90	72	60	45	36	30	22
	50Hz		300	200	150	100	75	60	50	38	30	25	18
60W	60Hz	kgfcm	12.7	18.4	23.7	33.3	42.1	48.2	56.1	69.0	78.9	87.7	102.9
	50Hz		15.1	21.8	28.1	39.5	49.9	57.1	66.5	81.7	93.5	103.9	121.9
90W	60Hz		19.1	27.6	35.5	50.0	63.1	72.3	84.2	103.4	118.3	131.5	132.7
	50Hz		22.6	32.7	42.1	59.2	74.8	85.7	99.7	122.6	140.3	155.8	132.7
120W	60Hz		25.4	36.8	47.3	66.6	84.2	96.4	112.2	137.9	157.8	163.3	132.7
	50Hz		30.1	43.6	56.1	79.0	99.7	114.3	133.0	163.5	173.5	163.3	132.7
150W	60Hz		32.8	47.5	61.1	86.0	108.6	124.4	144.8	178.0	173.5	163.3	132.7
	50Hz		39.1	56.6	72.8	102.5	129.5	148.3	172.6	183.7	173.5	163.3	132.7
180W	60Hz		38.1	55.2	71.0	99.9	126.2	144.6	168.3	183.7	173.5	163.3	132.7
	50Hz		46.9	68.0	87.4	123.0	155.4	178.0	204.1	183.7	173.5	163.3	132.7
200W	60Hz		43.7	63.3	81.4	114.6	144.8	165.9	193.0	183.7	173.5	163.3	132.7
	50Hz		52.1	75.5	97.1	136.7	172.6	183.7	204.1	183.7	173.5	163.3	132.7

1) Enter the gear ratio in the box □ within the gearbox model name.
2) 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.
3) Calculation of N.m ≒ kgfcm X 0.098

Gearbox Image

9WHD□-030

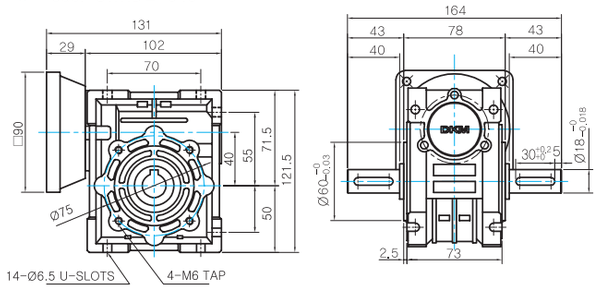
WH Type Worm Hollow Type Gearbox

Gearbox Image

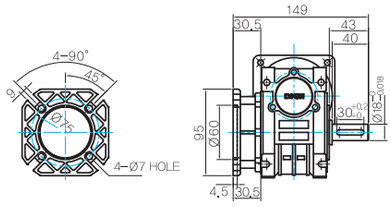
9WHD□-040	10WHD□-040
	

Dimensions

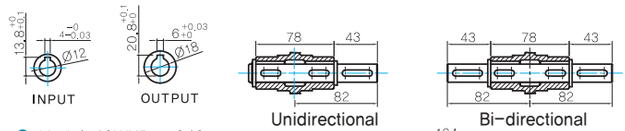
● Model: 9WHD□-040



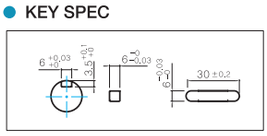
● FLANGE



● SHAFT



● KEY SPEC

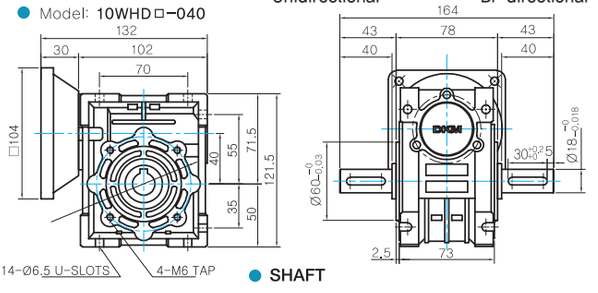


● WEIGHT

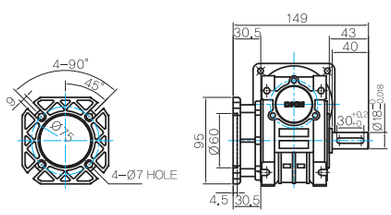
Model	WEIGHT(Kg)
9WHD□-040	2.10

* The output flange and shaft are sold separately

● Model: 10WHD□-040



● FLANGE



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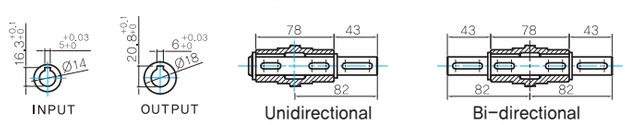
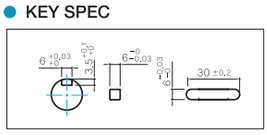


● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
10WHD□-040	2.20

* The output flange and shaft are sold separately

90mm Model: 9WHD□-040 Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	Gear Ratio		50	60	80	100
	60Hz	r/min	36	30	22	18
	50Hz		30	25	18	15
150W	60Hz	kgfcm	230.0	257.9	295.0	270.0
	50Hz		274.2	307.5	295.0	270.0
180W	60Hz		267.4	299.8	295.0	270.0
	50Hz		329.1	330.0	295.0	270.0
200W	60Hz		306.7	330.0	295.0	270.0
	50Hz		350.0	330.0	295.0	270.0

104mm Model: 10WHD□-040 Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

Motor Output	Gear Ratio		5	7.5	10	15	20	25	30	40
	60Hz	r/min	360	240	180	120	90	72	60	45
	50Hz		300	200	150	100	75	60	50	37.5
250W	50Hz	kgfcm	70.0	100.0	130.0	185.0	240.0	290.0	325.0	305.0
300W	60Hz		65.0	95.0	125.0	175.0	225.0	270.0	300.0	285.0
	50Hz		80.0	115.0	150.0	215.0	275.0	335.0	375.0	350.0
400W	60Hz		85.0	125.0	160.0	230.0	295.0	355.0	395.0	375.0

1) Enter the gear ratio in the box □ within the gearbox model name.
2) 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.
3) Calculation of N.m ≒ kgfcm X 0.098

HC Type

Helicross
Type Gearbox

Gearbox Image

9HC□□ / 10HC□□

90mm Model: 9HC□-◇ Max. Permissible Torque

* These are reference figures when the gearbox is attached to the induction motor.

Motor Model	Gear Ratio		15	20	25	30	40	50	60	80	100	120	160	200	225	240
	60Hz	r/min	120	90	72	60	45	36	30	22.5	18	15	11.25	9	8	7.5
	50Hz		100	75	60	50	37.5	30	25	18.8	15	12.5	9.4	7.5	6.7	6.25
90W	60Hz	kgfcm	60.0	80.0	100.0	120.0	160.0	200.0	240.0	320.0	399.9	479.9	639.9	799.9	899.9	959.9
	50Hz		71.1	94.8	118.5	142.2	189.6	237.0	284.4	379.2	474.0	568.8	758.4	948.0	1066.5	1137.6
120W	60Hz		80.0	106.7	133.3	160.0	213.3	266.6	320.0	426.6	533.3	639.9	853.2	1066.5	1199.8	1279.8
	50Hz		94.8	126.4	158.0	189.6	252.8	316.0	379.2	505.6	632.0	758.4	1011.2	1264.0	1422.0	1516.8
150W	60Hz		103.2	137.6	172.0	206.4	275.2	344.0	412.9	550.5	688.1	825.7	1100.9	1376.2	1548.2	1651.4
	50Hz		123.1	164.1	205.1	246.1	328.2	410.2	492.2	656.3	820.4	984.5	1312.7	1640.8	1800.0	1800.0
180W	60Hz		120.0	160.0	200.0	240.0	320.0	399.9	479.9	639.9	799.9	959.9	1279.8	1599.8	1799.8	1800.0
	50Hz		147.7	196.9	246.1	295.3	393.8	492.2	590.7	787.6	984.5	1181.4	1575.2	1800.0	1800.0	1800.0
200W	60Hz		137.6	183.5	229.4	275.2	367.0	458.7	550.5	734.0	917.4	1100.9	1467.9	1800.0	1800.0	1800.0
	50Hz		164.1	218.8	273.5	328.2	437.6	546.9	656.3	875.1	1093.9	1312.7	1750.2	1800.0	1800.0	1800.0

104mm Model: 10HC□-◇ Max. Permissible Torque

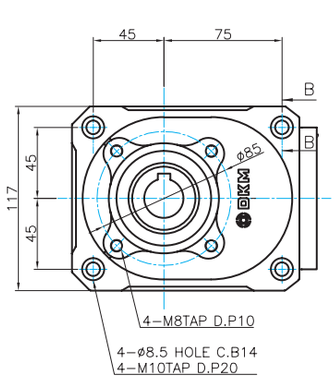
* These are reference figures when the gearbox is attached to the induction motor.

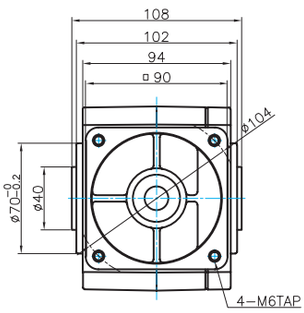
Motor Model	Gear Ratio		15	20	25	30	40	50	60	80	100	120	160	200	225	240
	60Hz	r/min	120	90	72	60	45	36	30	22.5	18	15	11.25	9	8	7.5
	50Hz		100	75	60	50	37.5	30	25	18.8	15	12.5	9.4	7.5	6.7	6.25
250W	50Hz	kgfcm	213.3	284.4	355.5	426.6	568.8	711.0	853.2	1137.6	1422.0	1706.4	2275.3	2844.1	3000.0	3000.0
300W	60Hz		200.0	266.6	333.3	399.9	533.3	666.6	799.9	1066.5	1333.2	1599.8	2133.1	2666.3	2999.6	3000.0
	50Hz		246.1	328.2	410.2	492.2	656.3	820.4	984.5	1312.7	1640.8	1969.0	2625.3	3000.0	3000.0	3000.0
400W	60Hz		266.6	355.5	444.4	533.3	711.0	888.8	1066.5	1422.0	1777.6	2133.1	2844.1	3000.0	3000.0	3000.0

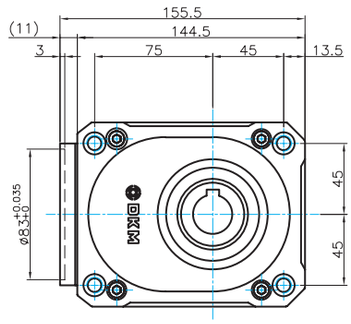
1) Enter the gear ratio in the box □ within the gearbox model name and the output shaft material in the place ◇
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed 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.
4) Calculation of N.m ≒ kgfcm X 0.098

Dimensions (9HC□-◇)

● Gear Ratio 1/15~1/60





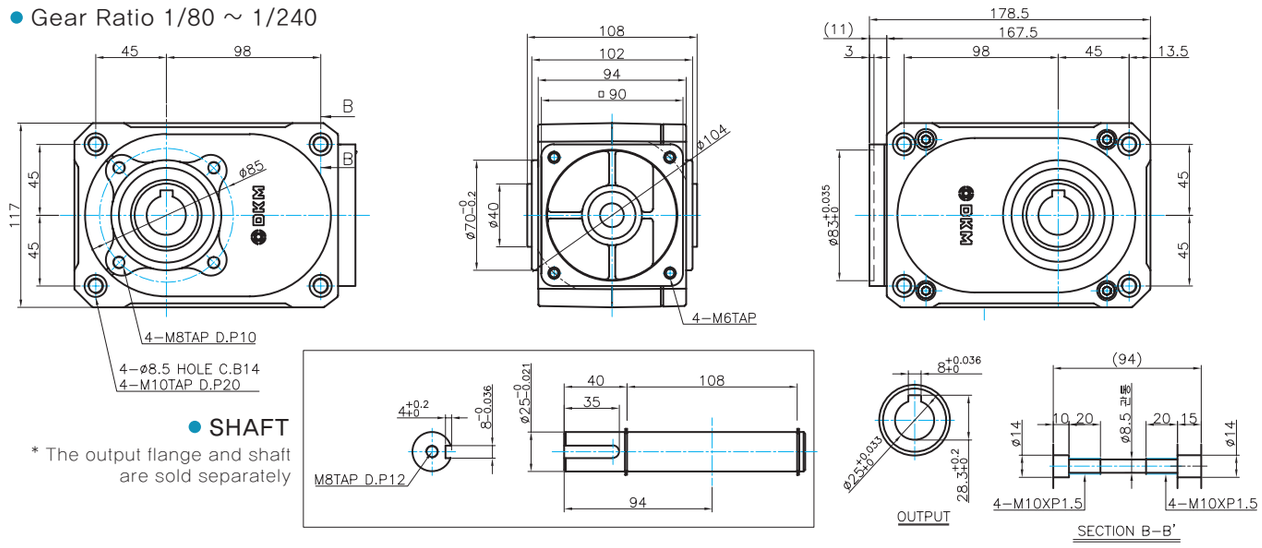


1) Enter the gear ratio in the place □.(15 : 15:1 / 20 : 20:1 / 25 : 25:1...)
2) Enter the output shaft material in the place ◇.(B : S45C / S : SUS)

D Gearboxes

Right-Angle Gearbox

● Gear Ratio 1/80 ~ 1/240

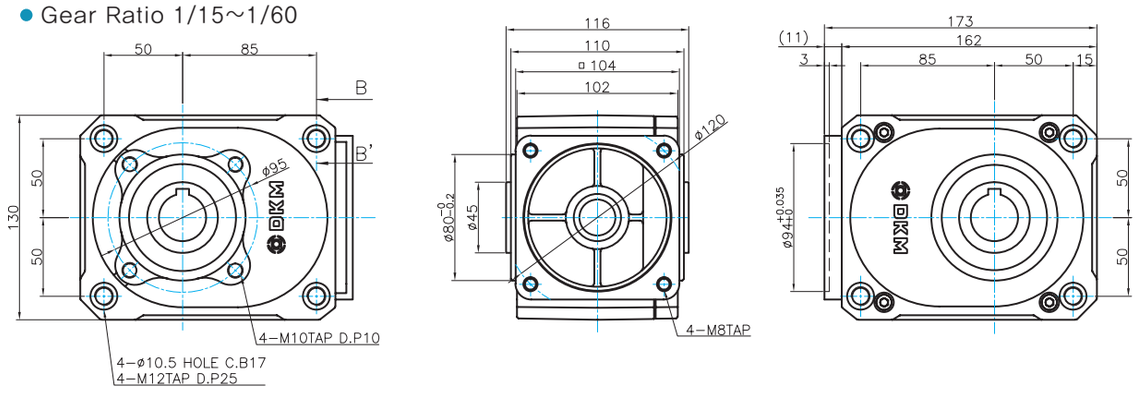


● SHAFT

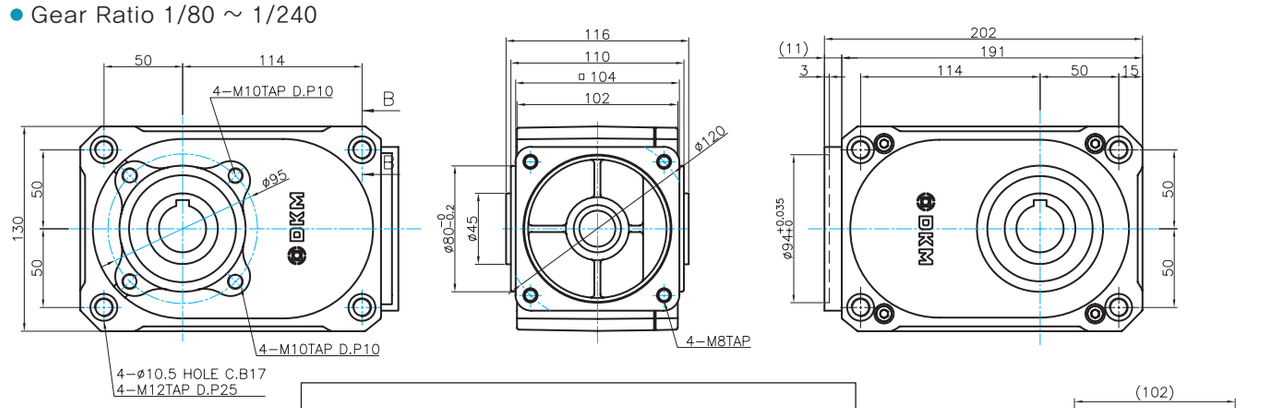
* The output flange and shaft are sold separately

Dimensions (10HC □ - ◇)

● Gear Ratio 1/15~1/60

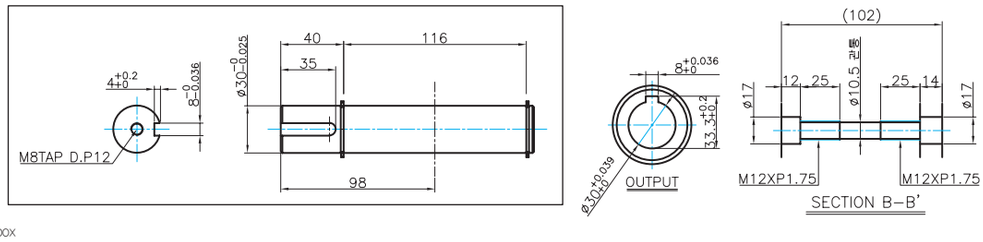


● Gear Ratio 1/80 ~ 1/240



● SHAFT

* The output flange and shaft are sold separately



Inter-decimal Gearbox

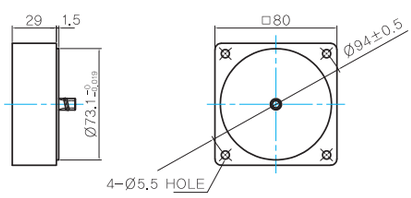
Frame Size 80mm Model : 8XD10○○
Frame Size 90mm Model : 9XD10○○

* Enter the model type of attaching a gearbox in the circle ○ within the model name.
8XD10○○ : GG, GW
9XD10○○ : GG, GW, GP,GH, GZ, PP, PW, PH, PZ

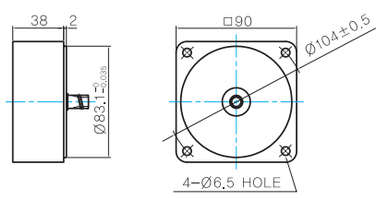
- In case of requiring high gear reduction ratio that cannot be generated by single gearbox, please use Inter-decimal gearbox with a general gearbox.
- Please be advised that in this case only the revolution speed of the output shaft will be reduced by 10:1 without increasing of maximum permissible torque.

Dimensions

- Model: 8XD10○○



- Model: 9XD10○○

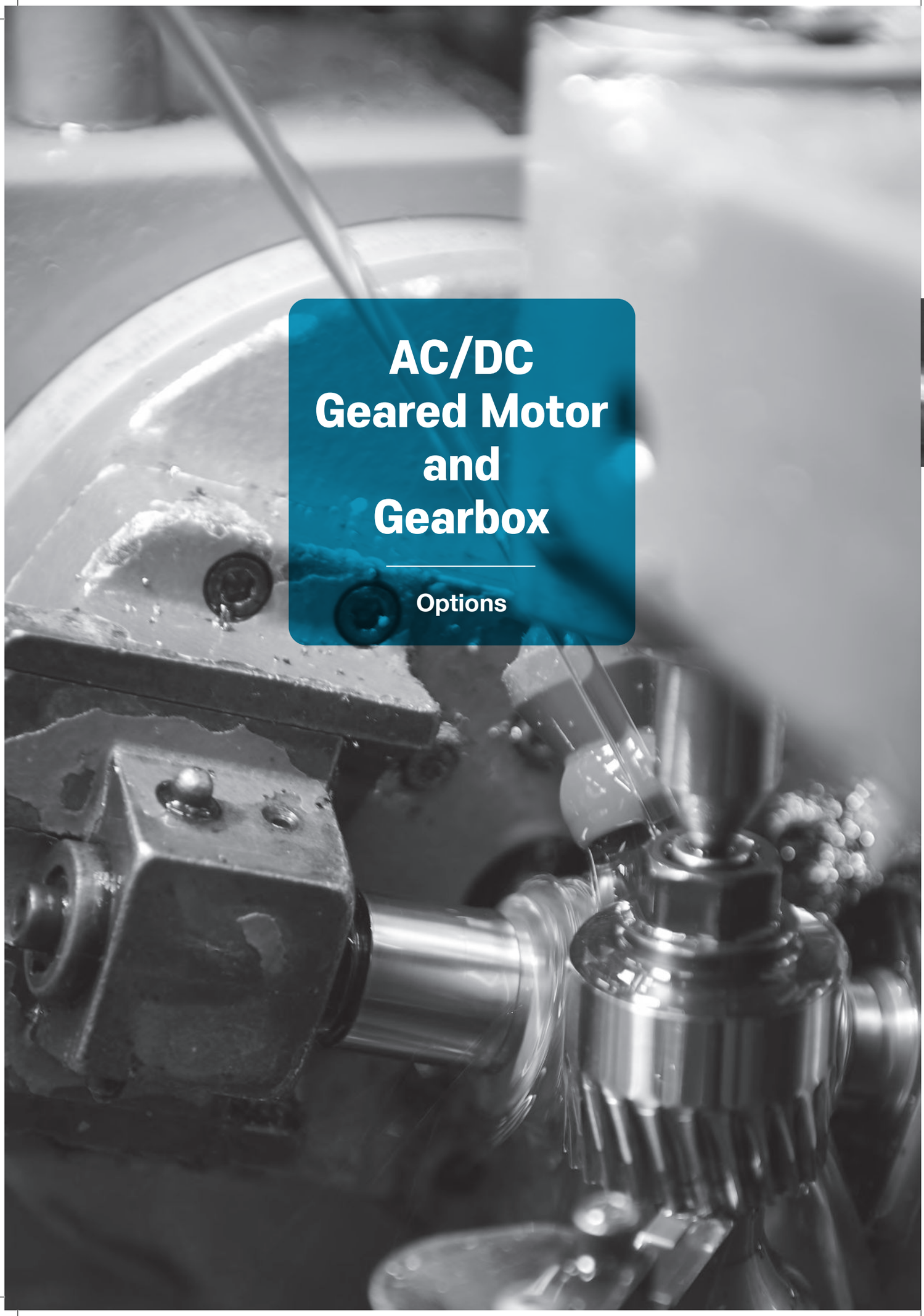


- WEIGHT

Model	WEIGHT(Kg)
8XD10○○	0.45
9XD10○○	0.60

Gearbox Image

Inter-decimal Gearbox



AC/DC Geared Motor and Gearbox

Options

Contents

E Options

Mounting Bracket

Mounting Bracket

It enables motor/gearbox to be mounted on installation place.
DKM has mounting brackets of frame size □70/80/90mm for motors and gearboxes.

Product Code

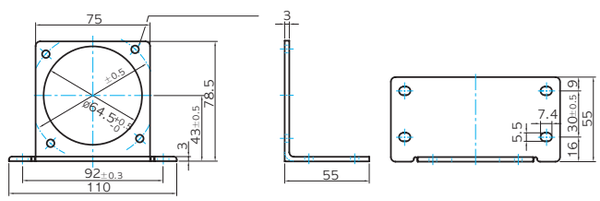
D BK M – 70

- **Brand** — D : DKM
- **Product** — BK : Bracket
- **Attaching Item** — M : Motor or Gearbox
- **Frame Size**
  - 70 : □70mm Motor or Gearbox
  - 80 : □80mm Motor or Gearboxr
  - 90 : □90mm Motor or Gearboxr

Dimensions

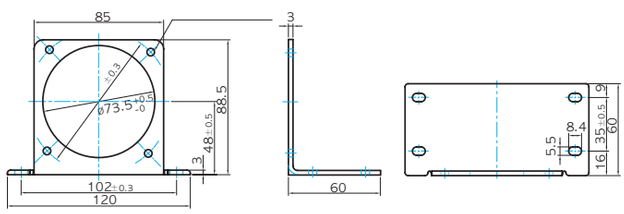
For Frame Size □70mm

● Model: DBKM-70



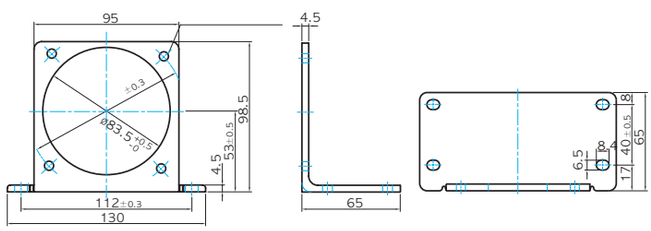
For Frame Size □80mm

● Model: DBKM-80



For Frame Size □90mm

● Model: DBKM-90



Product Code

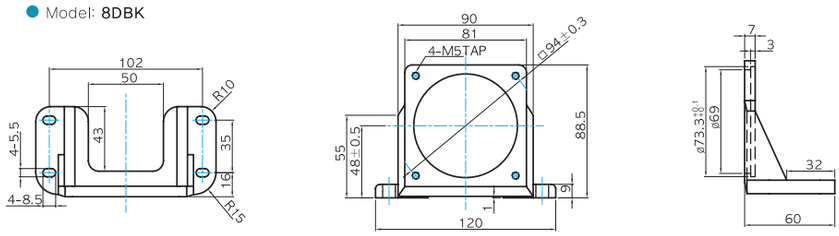
9	D	BK	–	M6

- **Frame Size**
  - **8** : □80mm Motor or Gearbox
  - **9** : □90mm Motor or Gearbox
- **Brand**
  - **D** : DKM
- **Product**
  - **BK** : Bracket
- **Attaching Item**
  - **M6** : 90mm Motor or G TYPE & P Type Gearbox
  - **M8** : 90mm Motor or H Type Gearbox
  - **No Mark** : 80mm Motor or Gearbox

Dimensions

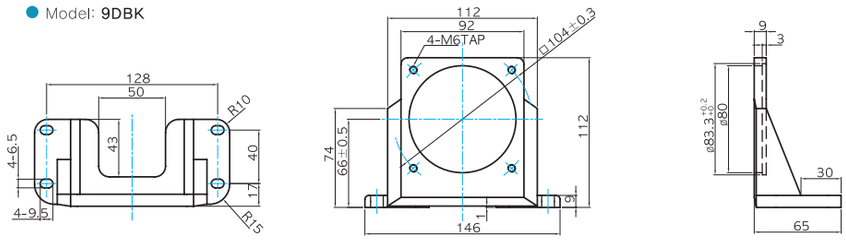
For Frame Size □80mm

● Model: 8DBK



For Frame Size □90mm

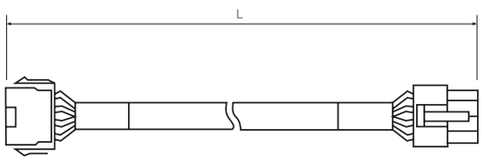
● Model: 9DBK



Extension Cable

This is for the connection between speed control motors and speed controllers.
The basic length of extension cable is 0.3m. So if longer needed, please order the cable additionally.

Dimension



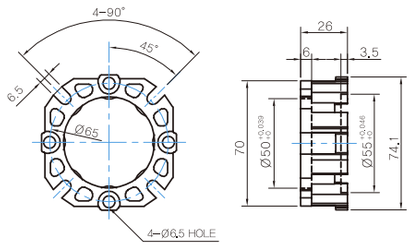
MODEL	Length of cable (L)
DEW-05	0.5m
DEW-10	1.0m
DEW-15	1.5m
DEW-20	2.0m
DEW-30	3.0m
DEW-50	5.0m

Flange(Output / Input)

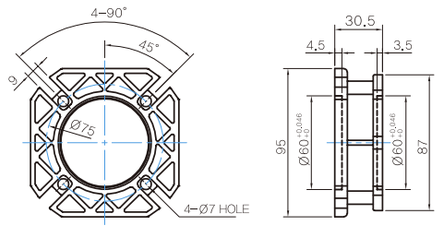
It is available to fix/install worm hollow type gearboxes by attaching output flange to the gearbox.

Dimensions

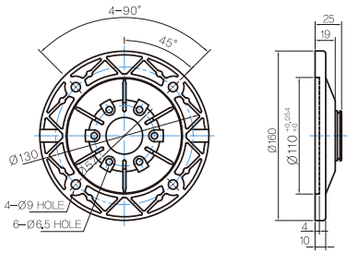
● MODEL: **WHG-030-Fa**



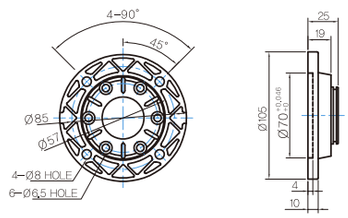
● MODEL: **WHG-040-Fa**



● MODEL: **040-Flange-71B5**



● MODEL: **040-Flange-71B14**



E

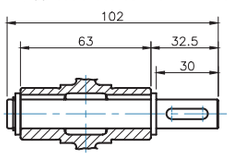
Output Flange / Output Shaft

Output Shaft

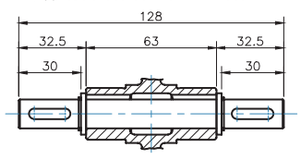
These are output shafts to be attached to worm hollow type gearboxes.
There are unidirectional output shaft and bi-directional output shaft.

Dimensions

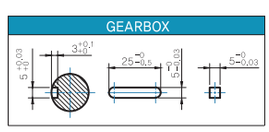
● Unidriectional MODEL : 030 SHAFT-S
(Applicable Gearbox : 9WHD□-030)



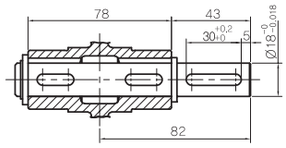
● Unidriectional MODEL : 030 SHAFT-D
(Applicable Gearbox : 9WHD□-030)



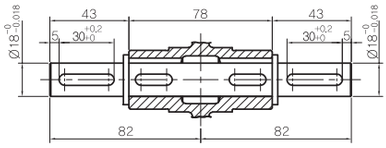
● KEY SPEC



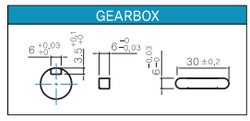
● Unidriectional MODEL : 040 SHAFT-S
(Applicable Gearboxes : 9WHD□-040, 10WHD□-040)



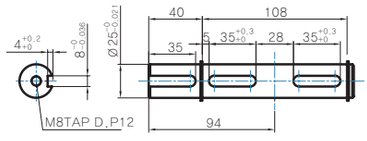
● Unidriectional MODEL : 040 SHAFT-D
(Applicable Gearboxes : 9WHD□-040, 10WHD□-040)



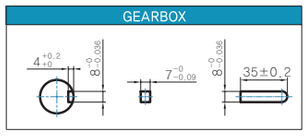
● KEY SPEC



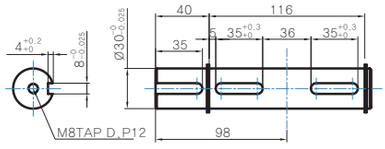
● Unidriectional MODEL : 9HC SHAFT-S-◇
(Applicable Gearboxes : 9HC□-◇)



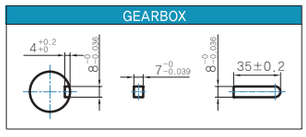
● KEY SPEC



● Unidriectional MODEL : 10HC SHAFT-S-◇
(Applicable Gearboxes : 10HC□-◇)



● KEY SPEC



* Enter the output shaft material in the ◇ position.(B : S45C / S : SUS)

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Wir kombinieren Elektronik und Mechanik für Sie. Und das seit über 70 Jahren.

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Kataloge entdecken

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