

## DC MOTOR



### ■ INDEX

DC MOTOR FEATURES	216
15W (□60mm)	219
25W (□80mm)	221
40W (□80mm)	223
60W (□90mm)	225
90W (□90mm)	227
120W (□90mm)	229

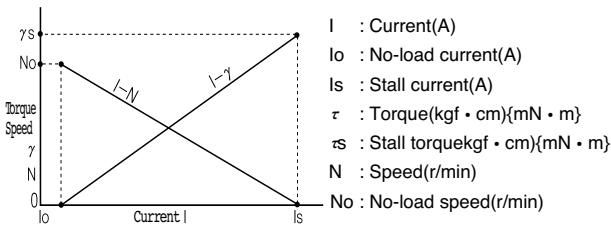
## ■ Characteristic of D.C. magnet motor

### ● Current, Torque and Speed (r/min)

When the voltage of power supply is fixed, D.C. magnet motor shows the characteristic in the relationship between torque / speed and current as below.

The relationship is almost linear show as the above, and the speed decreases, and current increases conversely when increasing the trque to the output shaft motor. It is same until the output shaft of motor is done a stall, when ignored heat generation in the motor.(It is possible to control the torque by controlling the current.)

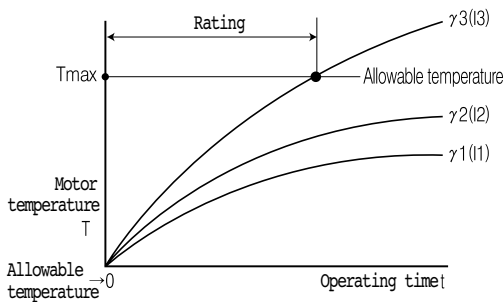
※ Note : Plese contact us if the characteristic diagram isrequired.



### ● Rating time

According to increase of current (and torque), heat generation in the motor increases. Generally, when the temperature of component parts in the motor is below than allowable temperature after it was saturated, it is possible to keep continuous operation. When it was not saturated in the allowable temperature, the time to exceed the temperature is rating time of motor and it is short-time rating specification. According to size and the specifications, each motor model has different current (torque) value to be possible continuous operation.

※ Note : Plese contact us about the rating time when D.C. motor is used by over loading.

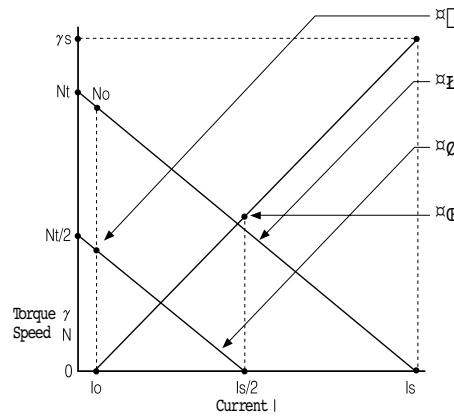


- $\tau_1, \tau_2$  ( | 1, | 2) : The torque(current)to be possible continuous operation.
- $\tau_3$  ( | 3) : The torque(current)to be short-time rating.

[The relationship between operating time : “t” and temperature in D.C. motor “T” by using torque as the parameter, when ambient temperature is fixed.]

### ● Performance of D.C motor in case of voltage change at power supply

D.C. magnet motor can change speed by changing power supply voltage. The relationship between torque/speed and current of motor when the voltage is half(1/2) is shown as below. As the above 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 same as the rated voltage, but the stall current “Is” becomes “Is/2” (It is possible to control speed by controlling the voltage.)



- 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 zoo current.)

### ● Input / output and efficiency of D.C. motor

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

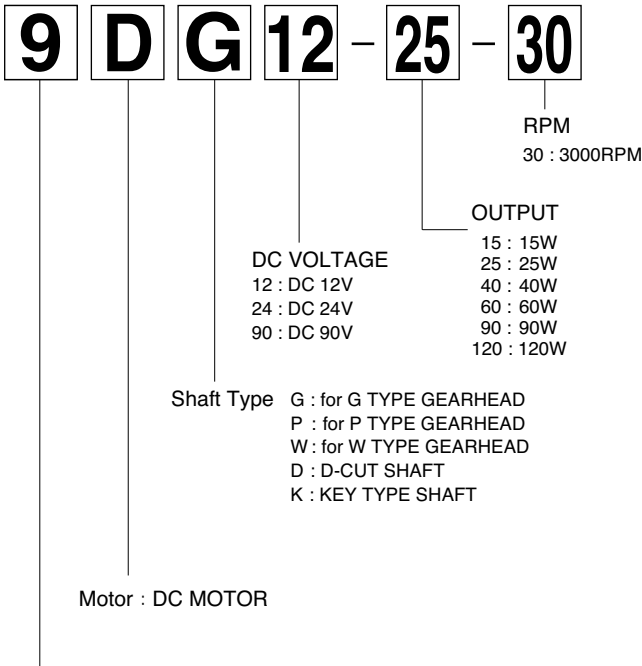
$$\text{Input(W)} = \text{Power supply voltage(V)} \times \text{Current(A)}$$

$$\text{Output(W)} = \text{Torque}\tau(\text{kgf} \cdot \text{cm}) \times \text{Speed}N(\text{r/min}) \times 1.027 \times 10^{-2}$$

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

# Product Coding System

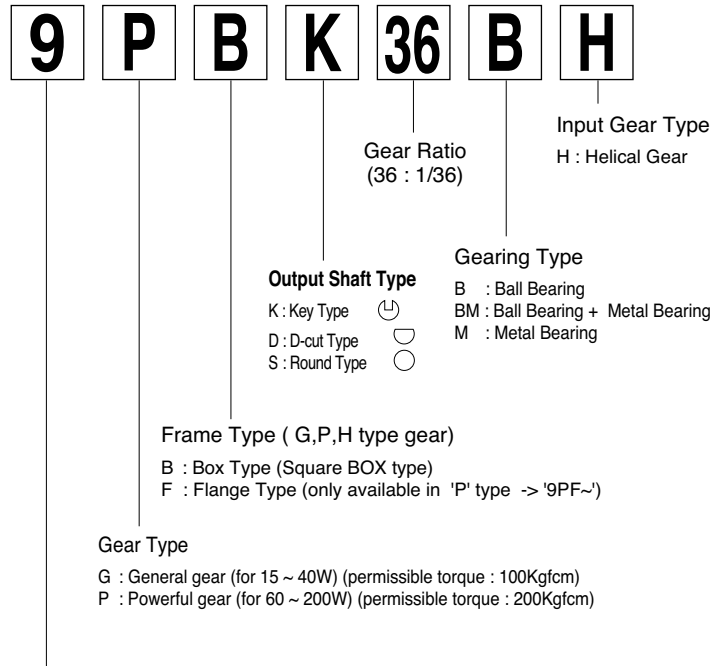
## MOTOR



### Motor Frame Size

- 6 : □60mm sq. (2.36 in.sq.) (15W)
- 8 : □80mm sq. (3.15 in.sq.) (25~40W)
- 9 : □90mm sq. (3.54 in.sq.) (60~120W)

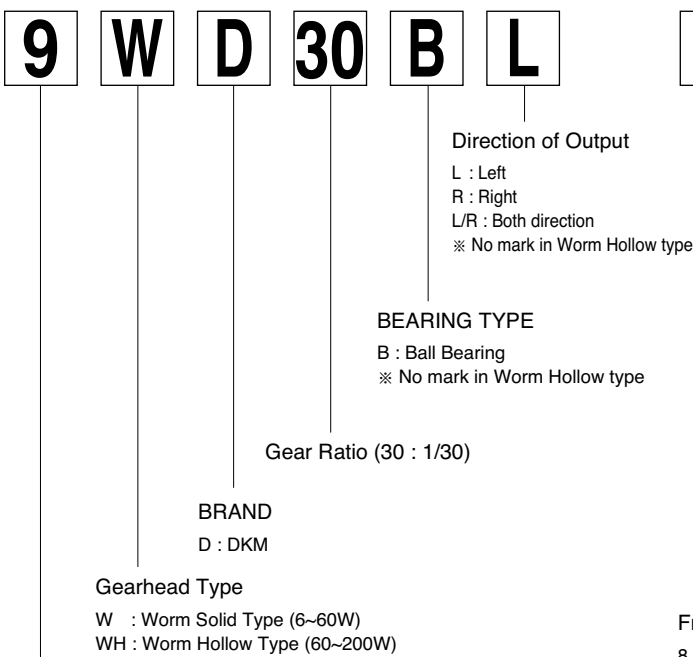
## PARALLEL GEARHEAD



### Frame Size

- 6 : □60mm sq. (2.36 in.sq.) (15W)
- 8 : □80mm sq. (3.15 in.sq.) (25~40W)
- 9 : □90mm sq. (3.54 in.sq.) (60~120W)

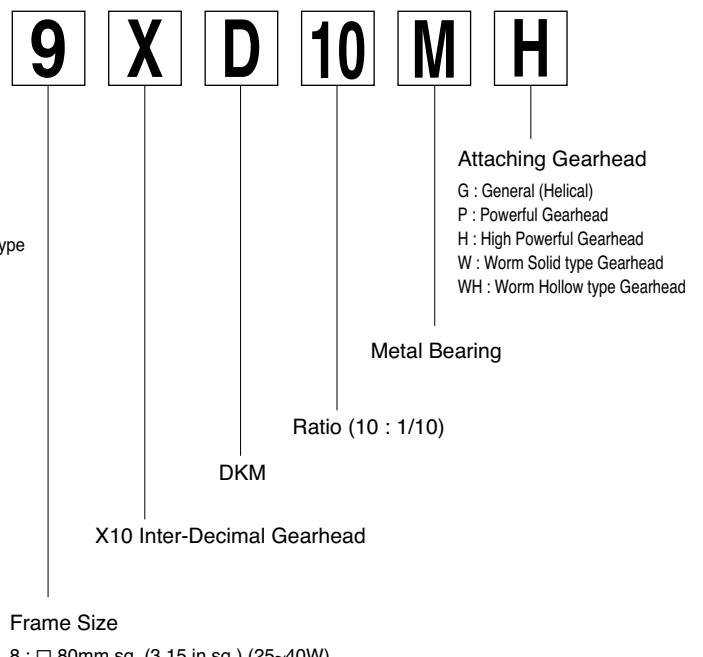
## WORM GEARHEAD



### Frame size

- 8 : □80mm square (3.15 in.sq.) (15~40W)
- 9 : □90mm square (3.54 in.sq.) (60~120W)
- ※ Worm Hollow gearhead is 90mm.

## X10 Inter-Decimal GEARHEAD



### Frame Size

- 8 : □80mm sq. (3.15 in.sq.) (25~40W)
- 9 : □90mm sq. (3.54 in.sq.) (60~120W)

\* In case of exceeding 200:1 ratio, please use X10 Inter-decimal gearhead with general gearhead. And please be advised that only speed will reduce by 10:1 without torque increasing.

## ■ DC Motor Line-Up

Frame size □mm (in.)	Output W	Type	DC Voltage	Page
			12 / 24 / 90V	
60 (2.36)	15	Lead Wire	●	219
80 (3.15)	25	Lead Wire	●	221
	40	Lead Wire	●	223
90 (3.54)	60	Lead Wire	●	225
	90	Lead Wire	●	227
	120	Lead Wire	●	229

## ■ General Specifications

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 KV at 50 Hz and 60 Hz 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℃ (144°F) or less measured by the resistance change method after rated motor operation with connecting a gearhead or equivalent heat radiation plate.
Insulation Class	Class B [ 130℃ (266°F) ]
Ambient Temperature Range	-10℃ ~ + 40℃ (14°F ~ 104°F) (nonfreezing)
Ambient Humidity	85% maximum (noncondensing)

# DC MOTOR 15W

□60mm(2.36in.)



## Motor Specification

Model 6DCG□-15-30 : Pinion Shaft Type 6DCD□-15-30 : D-Cut Shaft Type	Output		Rated V VDC	No Load		Rated Load			Starting Cur. A	Starting Torque				
	HP	W		Current A	Speed RPM	Current A	Speed RPM	Torque gfc m mN.m oz-in			gfc m	mN.m	oz-in	
<b>6DCG(D)12-15-30</b>			12	0.55	3200	1.9			15.0					
<b>6DCG(D)24-15-30</b>	1/50	15	24	0.24	3480	1.1	3000	500	50	7.092	8.0	4400	440	62
<b>6DCG(D)90-15-30</b>			90	0.05	3150	0.18			1.9					

\* 'Pinion Shaft' is for attaching gearhead and 'D-Cut Shaft' is for using motor only.

## Permissible Torque When using gearhead

Model	speed RPM (r/min)	1000	833	600	500	400	333	300	240	200	167	150	120	100	83.3	75	60	50	40	33.3	30	25	20	16.7	15	12
Motor/Gearhead	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
<b>6DCG□-15-30</b> / <b>6GBD□BMH</b>	kgf cm	1.4	1.8	2.4	2.9	3.7	4.4	4.9	6.1	7.3	8.8	9.7	12.2	14.6	17.5	19.5	24.4	29.2	30	30	30	30	30	30	30	30
	N.m	0.14	0.18	0.25	0.29	0.37	0.44	0.49	0.6	0.7	0.9	1.0	1.2	1.5	1.8	2.0	2.4	2.9	3	3	3	3	3	3	3	3
	lb-in	1.2	1.6	2.1	2.6	3.3	3.9	4.3	5	6	8	9	11	13	15	17	22	26	26	26	26	26	26	26	26	26

\* Enter the phase & voltage code in the box (□) within the motor model name.

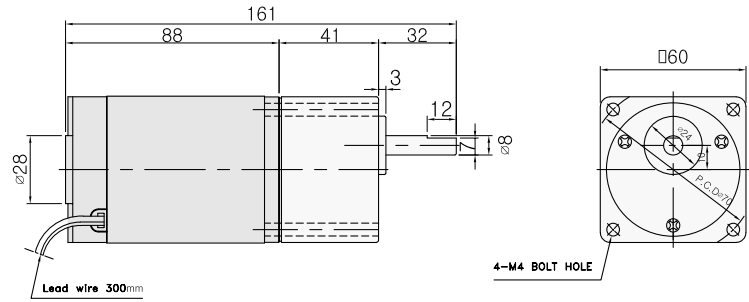
\* Enter the gear ratio in the box (□) within the gearhead model name. A colored background indicates gear shaft rotation in the same direction as the motor shaft ; a white background indicates rotation in the opposite direction.

\* The speed is calculated by dividing the motor's synchronous speed (3000 r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

### Dimension

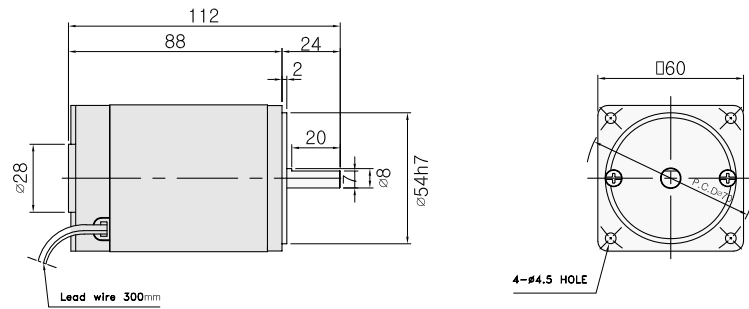
#### ◆ GEARED MOTOR

- \* MOTOR MODEL : 6DCG□-15-30 (□ : 12V,24V,90V)
- \* HEAD MODEL : 6GBD3BMH - 6GBD250BMH



#### ◆ MOTOR ONLY

- \* MOTOR MODEL : 6DCD□-15-30



#### ◆ MOTOR OUTPUT DIMENSION

MODEL	DIMENSION
GEAR TYPE	
6DCG□-15-30	
D-CUT TYPE	
6DCD□-15-30	

#### ◆ GEARHEAD OUTPUT DIMENSION

MODEL	DIMENSION
D-CUT TYPE	
6GBD3BMH ~6GBD 250BMH	

#### ◆ WEIGHT

PART		WEIGHT(Kg)
MOTOR		0.7
GEAR HEAD	6GBD3BMH - 6GBD18BMH	0.3
	6GBD25BMH - 6GBD 30BMH	0.32
	6GBD36BMH - 6GBD250BMH	0.34

\* Above table indicates output shaft dimension made by user's request and ★ indicates the basic dimension in factory shipping.

# DC MOTOR 25W

□80mm(3.15in.)



## Motor Specification

Model 8DCG□-25-30 : Pinion Shaft Type 8DCD□-25-30 : D-Cut Shaft Type	Output		Rated V	No Load		Rated Load			Starting Cur. A	Starting Torque				
				Current	Speed	Current	Speed	Torque						
	HP	W	VDC	A	RPM	A	RPM	gfcM	mN.m	oz-in	A	gfcM	mN.m	oz-in
<b>8DCG(D)12-25-30</b>			12	1.2	3200	2.7				25	7500	750	106	
<b>8DCG(D)24-25-30</b>	1/30	25	24	0.35	3100	1.3	3000	800	80	11.35	22	15000	1500	213
<b>8DCG(D)90-25-30</b>			90	0.12	3350	0.35				10	23000	2300	326	

\* 'Pinion Shaft' is for attaching gearhead and 'D-Cut Shaft' is for using motor only.

## Permissible Torque When using gearhead

Model	speed RPM (r/min)	1,000	833	600	500	400	333	300	240	200	167	150	120	100	83.3	75	60	50	40	33.3	30	25	20	16.7	15	12	10	8
Motor/Gearhead	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	300	360
<b>8DCG□-25-30 / 8GBK□BMH</b>	kgf cm	2.4	2.9	4.1	4.9	6.1	7.3	8.1	10.2	12.2	14.6	16.3	20.3	24.4	29.3	32.5	40.7	48.8	61.0	73.2	80	80	80	80	80	80	80	80
	N.m	0.24	0.29	0.41	0.49	0.61	0.73	0.81	1.0	1.2	1.5	1.6	2.0	2.4	2.9	3.3	4.1	4.9	6.1	7.3	8	8	8	8	8	8	8	8
	lb-in	2.2	2.6	3.6	4.3	5.4	6.5	7.2	9	11	13	14	18	22	26	29	36	43	54	65	71	71	71	71	71	71	71	71

\* Enter the phase & voltage code in the box (□) within the motor model name.

\* Enter the gear ratio in the box (□) within the gearhead model name. A colored background indicates gear shaft rotation in the same direction as the motor shaft ; a white background indicates rotation in the opposite direction.

\* The speed is calculated by dividing the motor's synchronous speed (3000 r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

\* If more slow speed is needed than above value, use decimal gearhead with a gear ratio of 10:1 between gearhead and motor. Even decimal gearhead is used, just speed will be reduced without increase in permissible torque ; the maximum permissible torque is 80kgfcm (8N.m, 71lb-in).

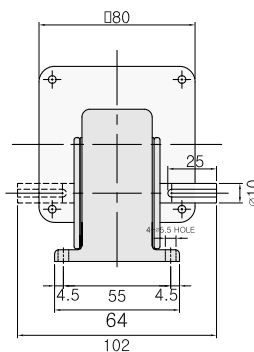
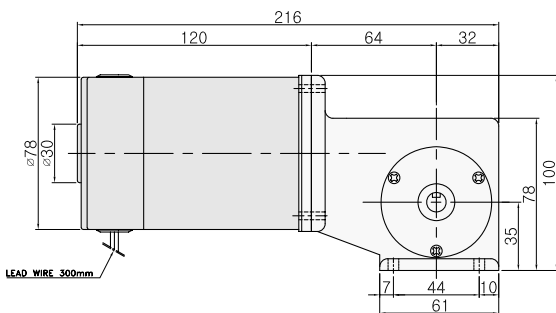
## Dimension

### 1. Worm Solid Gearhead Type

#### ◆ GEARED MOTOR

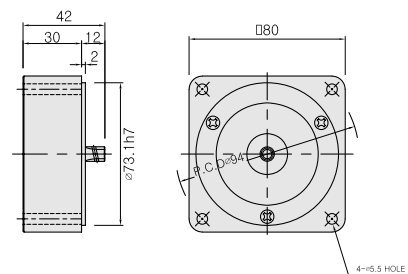
\* MOTOR MODEL : 8DCW□-25-30 (□ : 12V, 24V, 90V)

\* HEAD MODEL : 8WD10BR(L) - 8WD60BR(L)



#### ◆ INTER-DECIMAL GEARHEAD

\* MODEL : 8XD10MW



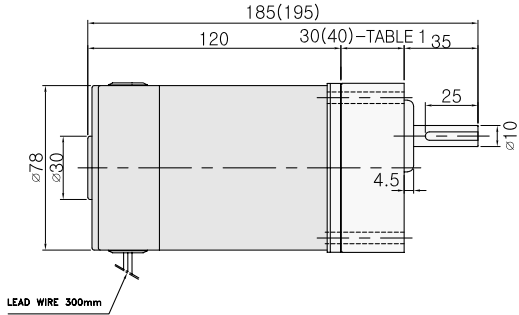
#### ◆ WEIGHT

PART	WEIGHT(Kg)
MOTOR	1.5
DECIMAL GEARHEAD	0.44
GEARHEAD	0.67

## 2. Parallel Gearhead Type

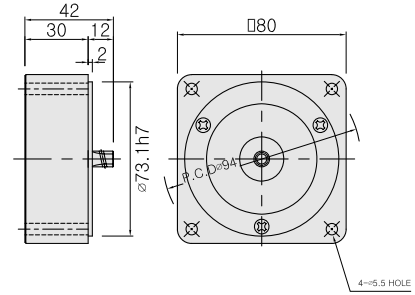
### ◆ GEARED MOTOR

- \* MOTOR MODEL : 8DCG□-25-30 (□ : 12V, 24V, 90V)
- \* HEAD MODEL : 8GB□ 3BMH - 8GB□ 360BMH



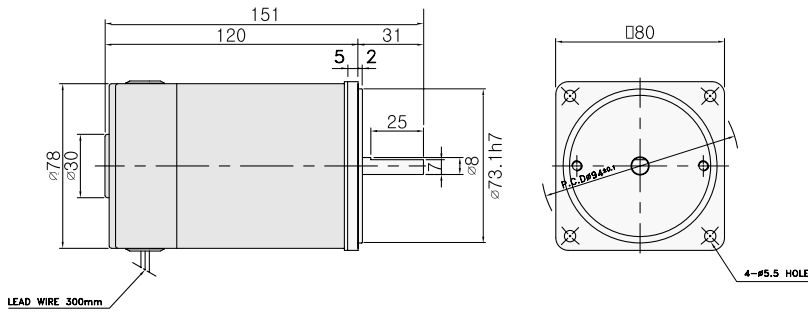
### ◆ INTER-DECIMAL GEARHEAD

- \* MODEL : 8XD10M□

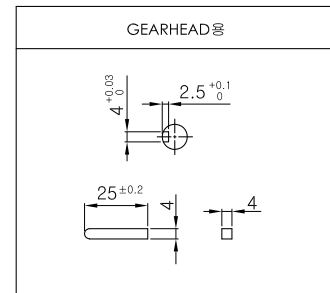


### ◆ MOTOR ONLY

- \* MOTOR MODEL : 8DCD□-25-30



### ◆ KEY SPEC



### ◆ GEARHEAD OUTPUT DIMENSION

MODEL	DIMENSION
ROUND TYPE	
8GBS3BMH ~8GBS360BMH	
D-CUT TYPE	
8GBD3BMH ~8GBD360BMH	
KEY TYPE	
8GBK3BMH ~8GBK360BMH	

### ◆ TABLE 1

SIZE(mm)	GEAR RATIO
30	8GB□ 3BMH - 8GB□ 18BMH
40	8GB□ 25BMH - 8GB□ 360BMH

### ◆ WEIGHT

PART	WEIGHT(Kg)	
MOTOR	1.5	
DECIMAL GEARHEAD	0.44	
GEAR HEAD	8GB□ 3BMH - 8GB□ 18BMH	0.48
	8GB□ 25BMH - 8GB□ 30BMH	0.61
	8GB□ 36BMH - 8GB□ 180BMH	0.67
	8GB□ 200BMH - 8GB□ 360BMH	0.63

### ◆ MOTOR OUTPUT DIMENSION

MODEL	DIMENSION
GEAR TYPE	
8IDG□-25G	
D-CUT TYPE	
8IDD□-25	

\* Above table indicates output shaft dimension made by user's request and ★ indicates the basic dimension in factory shipping.



# DC MOTOR 40W

□80mm(3.54in.)



## Motor Specification

Model 8DCG□-40-30 : Pinion Shaft Type 8DCD□-40-30 : D-Cut Shaft Type	Output		Rated V VDC	No Load		Rated Load			Starting Cur. A	Starting Torque		
	HP	W		Current A	Speed RPM	Current A	Speed RPM	Torque gfc mN.m oz-in			gfc m	mN.m
<b>8DCG(D)12-40-30</b>			12	1.2	3300	4.8			35	12000	1200	170
<b>8DCG(D)24-40-30</b>	1/19	40	24	0.4	3150	2.5	3000	1300 130 18.44	30	20000	2000	284
<b>8DCG(D)90-40-30</b>			90	0.18	3350	0.48			10	23000	2300	326

\* 'Pinion Shaft' is for attaching gearhead and 'D-Cut Shaft' is for using motor only.

## Permissible Torque When using gearhead

Model	speed RPM (r/min)	1,500	1,000	833	600	500	400	333	300	240	200	167	120	100	83.3	75	60	50	40	33.3	30	25	20	16.7	15	12	10	8	
Motor/Gearhead	Gear Ratio	2	3	3.6	5	6	7.5	9	10	12.5	15	18	25	30	36	40	50	60	75	90	100	120	150	180	200	250	300	360	
<b>8DCG□-40-30</b> / <b>8GBK□BMH</b>	kgf cm	2.6	3.9	4.7	6.5	7.8	9.7	11.7	13.0	16.2	19.5	23.4	32.5	39.0	46.7	51.9	64.9	77.9	80	80	80	80	80	80	80	80	80	80	80
	N.m	0.26	0.39	0.47	0.65	0.78	0.97	1.17	1.3	1.6	1.9	2.3	3.2	3.9	4.7	5.2	6.5	7.8	8	8	8	8	8	8	8	8	8	8	8
	lb-in	2.3	3.4	4.1	5.7	6.9	8.6	10.3	11	14	17	21	29	34	41	46	57	69	71	71	71	71	71	71	71	71	71	71	71

\* Enter the phase & voltage code in the box (□) within the motor model name.

\* Enter the gear ratio in the box (□) within the gearhead model name. A colored background indicates gear shaft rotation in the same direction as the motor shaft ; a white background indicates rotation in the opposite direction.

\* The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500 r/min, 60 Hz : 1800 r/min) by the gear ratio.

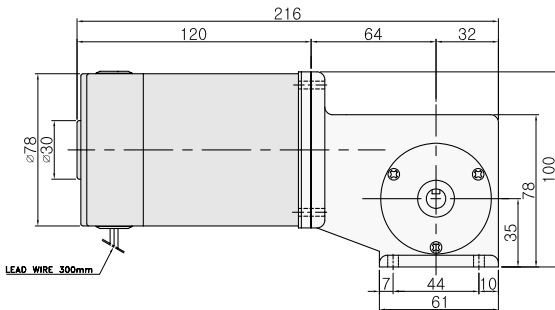
\* The actual speed is 2~20% less than the displayed value, depending on the size of the load.

\* If more slow speed is needed than above value, use decimal gearhead with a gear ratio of 10:1 could be used between general gearhead and motor. Even in this case, just speed will be reduced without increase in permissible torque; the maximum permissible torque is 100kgfcm (10N.m, 88lb-in).

## Dimension

### 1. Worm Solid Gearhead Type

- ◆ GEARED MOTOR \* MOTOR MODEL : 8DCW□-40-30 (□ : 12V,24V,90V)  
\* HEAD MODEL : 8WD10BR(L) - 8WD60BR(L)

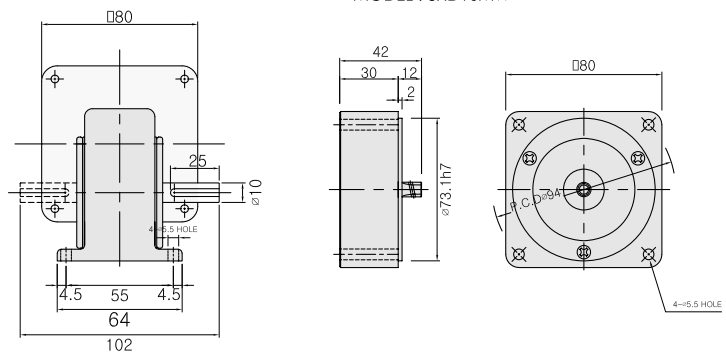


#### ◆ WEIGHT

PART	WEIGHT(Kg)
MOTOR	1.5
DECIMAL GEARHEAD	0.44
GEARHEAD	0.67

- ◆ INTER-DECIMAL GEARHEAD

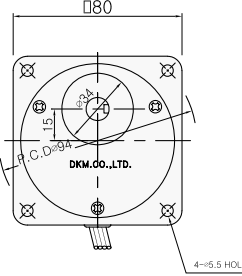
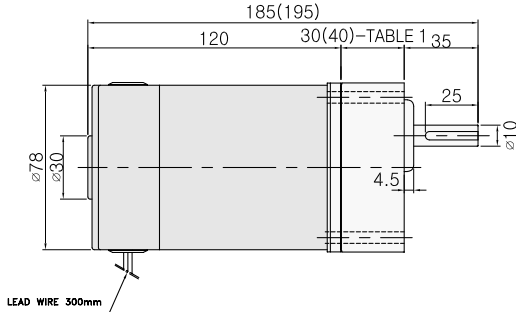
\* MODEL : 8XD10MW



## 2. Parallel Gearhead Type

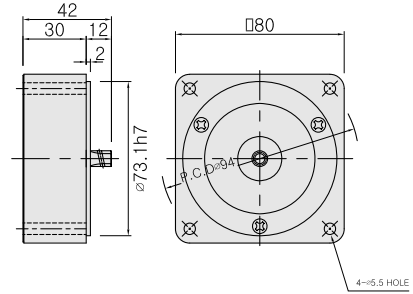
### ◆ GEARED MOTOR

- \* MOTOR MODEL : 8DCG□-40-30 (□ : 12V,24V,90V)
- \* HEAD MODEL : 8GB□3BMH - 8GB□360BMH



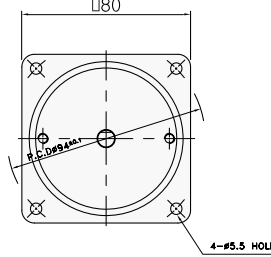
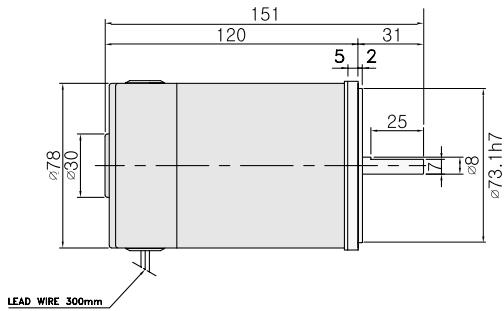
### ◆ INTER-DECIMAL GEARHEAD

- \* MODEL : 8XD10M□

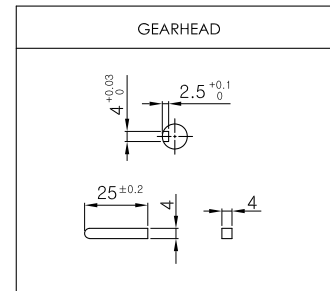


### ◆ MOTOR ONLY

- \* MOTOR MODEL : 8DCD□-40-30



### ◆ KEY SPEC



### ◆ GEARHEAD OUTPUT DIMENSION

MODEL	DIMENSION
ROUND TYPE	
8GBS3BMH ~8GBS360BMH	
D-CUT TYPE	
8GBD3BMH ~8GBD360BMH	
KEY TYPE	★
8GBK3BMH ~8GBK360BMH	

### ◆ TABLE 1

SIZE(mm)	GEAR RATIO
30	8GB□3BMH - 8GB□18BMH
40	8GB□25BMH - 8GB□360BMH

### ◆ WEIGHT

PART	WEIGHT(Kg)	
MOTOR	1.5	
DECIMAL GEARHEAD	0.44	
GEAR HEAD	8GB□3BMH - 8GB□18BMH	0.48
	8GB□25BMH - 8GB□30BMH	0.61
	8GB□36BMH - 8GB□180BMH	0.67
	8GB□200BMH - 8GB□360BMH	0.63

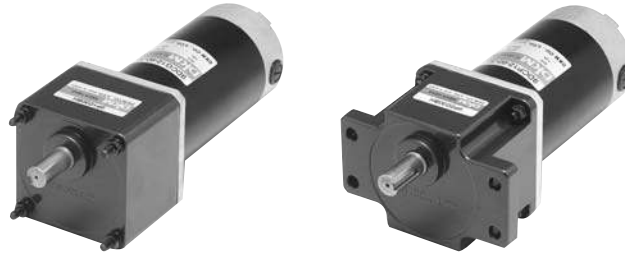
### ◆ MOTOR OUTPUT DIMENSION

MODEL	DIMENSION
GEAR TYPE	
8DCG□-40-30	
D-CUT TYPE	
8DCD□-40-30	★

\* Above table indicates output shaft dimension made by user's request and ★ indicates the basic dimension in factory shipping.

# DC MOTOR 60W

□90mm(3.54in.)



## Motor Specification

Model 9DCP□-60-30 : Pinion Shaft Type 9DCD□-60-30 : D-Cut Shaft Type	Output		Rated V	No Load		Rated Load			Starting Cur.	Starting Torque				
				Current	Speed	Current	Speed	Torque						
	HP	W	VDC	A	RPM	A	RPM	gfcM	mN.m	oz-in	A	gfcM	mN.m	oz-in
<b>9DCP(D)12-60-30</b>			12	1.3	3100	7.5	2700			40	18000	1800	255	
<b>9DCP(D)24-60-30</b>	1/13	60	24	0.5	3150	3.5	2800	2000	200	28.37	35	22000	2200	312
<b>9DCP(D)90-60-30</b>			90	0.2	3100	0.8	2800			12	24000	2400	340	

\* 'Pinion Shaft' is for attaching gearhead and 'D-Cut Shaft' is for using motor only.

## Permissible Torque When using gearhead

Model	speed RPM (r/min)	1500	1000	833	600	500	400	333	240	200	167	150	120	100	83.3	75	60	50	40	33.3	30	25	20	16.7	
Motor/Gearhead	Gear Ratio	2	3	3.6	5	6	7.5	9	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	
<b>9DCP□-60-30</b>	<b>9PBK□BH</b>	kgf cm	4.0	6.0	7.2	10	12	15	18	25	30	36	40	50	60	72	80	100	120	150	180	200	200	200	200
	<b>9PFK□BH</b>	N.m	0.40	0.60	0.72	1.00	1.20	1.50	1.80	2.5	3.0	3.6	4.0	5.0	6.0	7.2	8.0	10.0	12	15	18	20	20	20	20
		lb-in	3.5	5.3	6.4	8.8	10.6	13.2	15.9	22	26	32	35	44	53	64	71	88	106	132	159	177	177	177	177

\* Enter the phase & voltage code in the box (□) within the motor model name.

\* Enter the gear ratio in the box (□) within the gearhead model name. A colored background indicates gear shaft rotation in the same direction as the motor shaft ; a white background indicates rotation in the opposite direction.

\* The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500 r/min, 60 Hz : 1800 r/min) by the gear ratio.

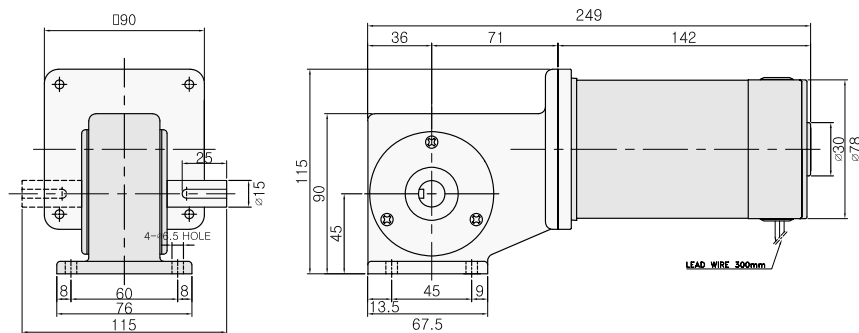
\* The actual speed is 2~20% less than the displayed value, depending on the size of the load.

\* If more slow speed is needed than above value, use decimal gearhead with a gear ratio of 10:1 could be used between general gearhead and motor. Even in this case, just speed will be reduced without increase in permissible torque; the maximum permissible torque is 200kgfcm (20N.m, 177lb-in).

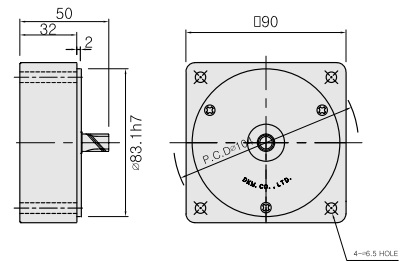
## Dimension

### 1. Worm Solid Gearhead Type

◆ GEARED MOTOR \* MOTOR MODEL : 9DCW□ - 60 - 30 (□ : 12V,24V,90V)  
\* HEAD MODEL : 9WD10BR(L) - 9WD60BR(L)



◆ INTER-DECIMAL GEARHEAD \* MODEL : 9XD10MW



◆ WEIGHT

PART	WEIGHT(Kg)
MOTOR	1.9
DECIMAL GEARHEAD	0.5
GEARHEAD	1.0

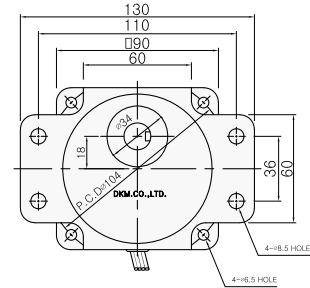
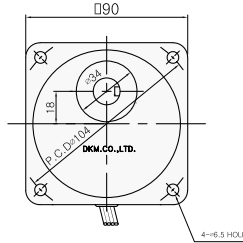
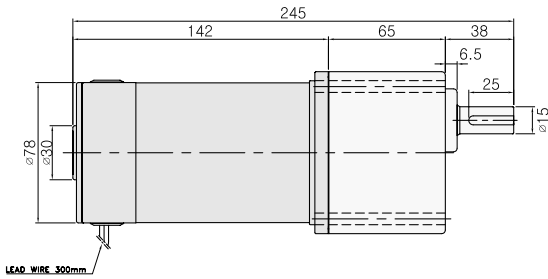
## 2. Parallel Gearhead Type

### ◆ GEARED MOTOR

\* MOTOR MODEL : 9DCP□-60-30 (□:12V,24V,90V)

\* HEAD MODEL : 9P□ 3BH - 9P□180BH

\* HEAD MODEL : 9PB □ 3BH - 9PB□180BH

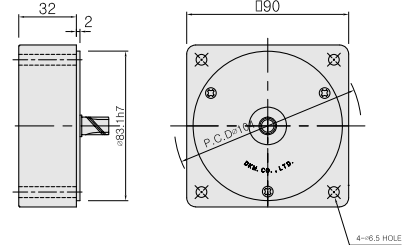
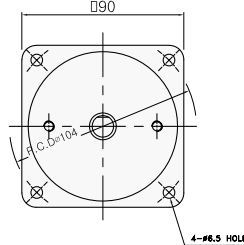
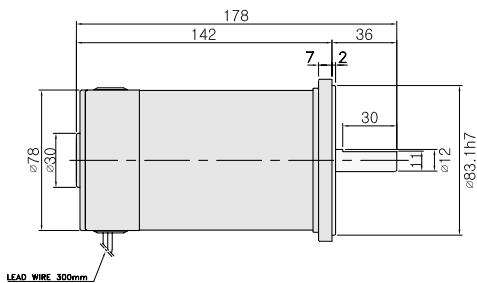


### ◆ MOTOR ONLY

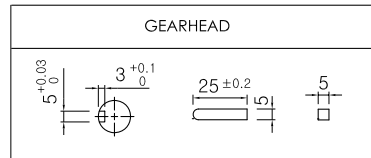
\* MOTOR MODEL : 9DCD□-60-30

### ◆ INTER-DECIMAL GEARHEAD

\* MODEL : 9XD10M□



### ◆ KEY SPEC



### ◆ GEARHEAD OUTPUT DIMENSION

MODEL	DIMENSION
ROUND TYPE	
9P□S3BH ~9P□S180BH	
D-CUT TYPE	
9P□D3BH ~9P□D180BH	
KEY TYPE	
9P□K3BH ~9P□K180BH	

### ◆ MOTOR OUTPUT DIMENSION

MODEL	DIMENSION
GEAR TYPE	
9DCP□-60-30	
D-CUT TYPE	
9DCD□-60-30	

### ◆ WEIGHT

PART	WEIGHT(Kg)	
MOTOR	1.9	
DECIMAL GEARHEAD	0.5	
GEAR HEAD	9P□ 3BH - 9P□9BH	1.3
	9P□ 12.5BH - 9P□18BH	1.3
	9P□ 25BH - 9P□60BH	1.4
	9P□ 90BH - 9P□180BH	1.4

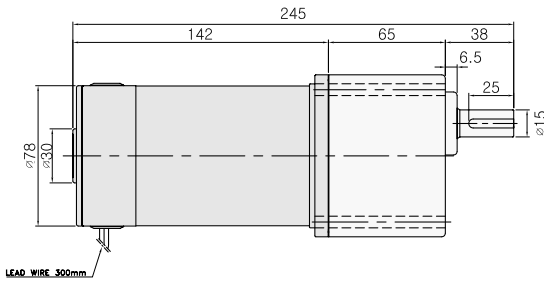
\* Above table indicates output shaft dimension made by user's request and ★ indicates the basic dimension in factory shipping.



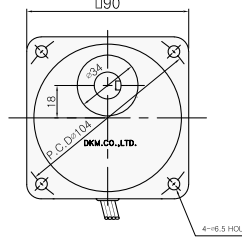
## 2. Parallel Gearhead Type

### ◆ GEARED MOTOR

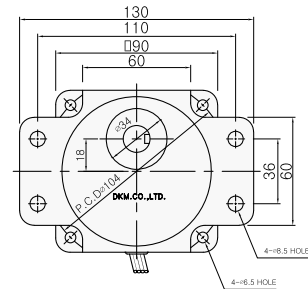
\* MOTOR MODEL : 9DCP□-90-30 (□:12V,24V,90V)



\* HEAD MODEL : 9PB□ 3BH - 9PB□180BH

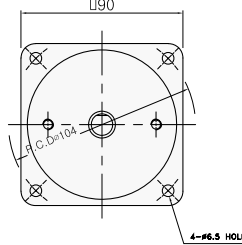
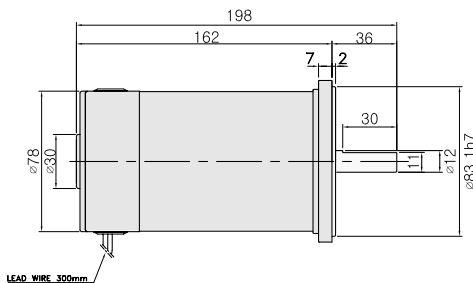


\* HEAD MODEL : 9PF□ 3BH - 9PF□180BH



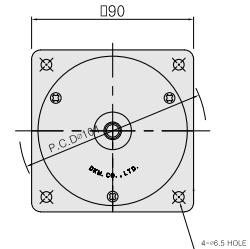
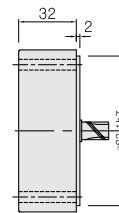
### ◆ MOTOR ONLY

\* MOTOR MODEL : 9DCD□-90-30

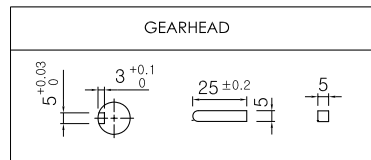


### ◆ INTER-DECIMAL GEARHEAD

\* MODEL : 9XD10M□



### ◆ KEY SPEC



### ◆ GEARHEAD OUTPUT DIMENSION

MODEL	DIMENSION
ROUND TYPE 9P□S3BH ~9P□S180BH	
D-CUT TYPE 9P□D3BH ~9P□D180BH	
KEY TYPE 9P□K3BH ~9P□K180BH	

### ◆ MOTOR OUTPUT DIMENSION

MODEL	DIMENSION
GEAR TYPE 9DCP□-90-30	
D-CUT TYPE 9DCD□-90-30	

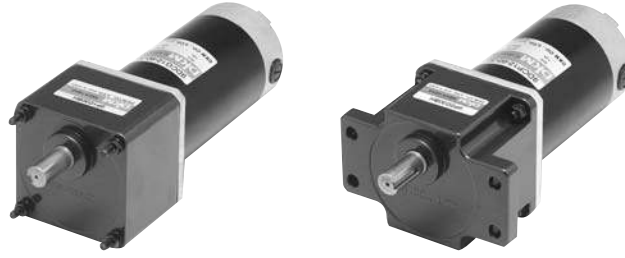
### ◆ WEIGHT

PART	WEIGHT(Kg)	
MOTOR	2.0	
DECIMAL GEARHEAD	0.5	
GEAR HEAD	9P□□ 3BH - 9P□□9BH	1.3
	9P□□ 12.5BH - 9P□□18BH	1.3
	9P□□ 25BH - 9P□□60BH	1.4
	9P□□ 90BH - 9P□□180BH	1.4

\* Above table indicates output shaft dimension made by user's request and ★ indicates the basic dimension in factory shipping.

# DC MOTOR 120W

□90mm(3.54in.)



## Motor Specification

Model 9DCP□-120-30 : Pinion Shaft Type 9DCD□-120-30 : D-Cut Shaft Type	Output		Rated V	No Load		Rated Load			Starting Cur.	Starting Torque				
				Current	Speed	Current	Speed	Torque						
	HP	W	VDC	A	RPM	A	RPM	gfcM	mN.m	oz-in	A	gfcM	mN.m	oz-in
<b>9DCP(D)12-120-30</b>	1/6	120	12	2.5	3450	13	3000	4200	420	59.57	104	36000	3600	511
<b>9DCP(D)24-120-30</b>			24	1.3	3050	7.2	2800				75	25000	2500	355
<b>9DCP(D)90-120-30</b>			90	0.4	3200	2.0	3000				17	37000	3700	525

\* 'Pinion Shaft' is for attaching gearhead and 'D-Cut Shaft' is for using motor only.

## Permissible Torque When using gearhead

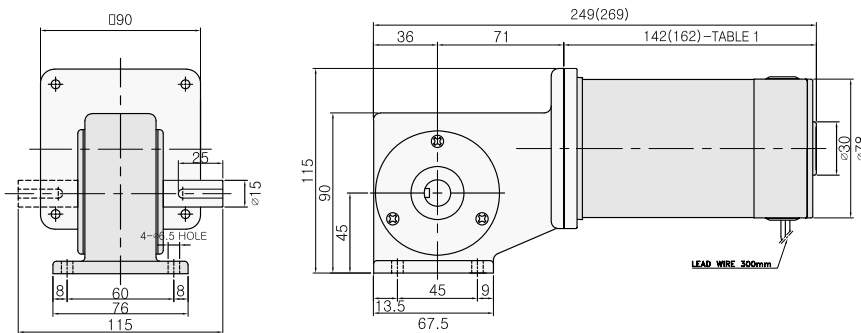
Model	speed RPM (r/min)	1500	1000	833	600	500	400	333	240	200	167	150	120	100	83.3	75	60	50	40	33.3	30	25	20	16.7
Motor/Gearhead	Gear Ratio	2	3	3.6	5	6	7.5	9	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180
9DCP□-120-30	9PBK□BH	kgfcm	8.4	13	15	21	25	32	38	53	63	76	84	105	126	151	168	200	200	200	200	200	200	200
	9PFK□BH	N.m	0.84	1.26	1.51	2.10	2.52	3.15	3.78	5.3	6.3	7.6	8.4	10.5	12.6	15	17	20	20	20	20	20	20	20
		lb-in	7.4	11.1	13.4	18.5	22.3	27.8	33.4	46	56	67	74	93	111	134	148	177	177	177	177	177	177	177

- \* Enter the phase & voltage code in the box (□) within the motor model name.
- \* Enter the gear ratio in the box (□) within the gearhead model name. A colored background indicates gear shaft rotation in the same direction as the motor shaft ; a white background indicates rotation in the opposite direction.
- \* The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500 r/min, 60 Hz : 1800 r/min) by the gear ratio.
- \* The actual speed is 2~20% less than the displayed value, depending on the size of the load.
- \* If more slow speed is needed than above value, use decimal gearhead with a gear ratio of 10:1 could be used between general gearhead and motor. Even in this case, just speed will be reduced without increase in permissible torque; the maximum permissible torque is 200kgfcm (20N.m, 177lb-in).

## 1. Worm Solid Gearhead Type

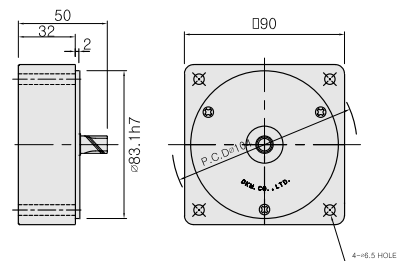
### ◆ GEARED MOTOR

- \* MOTOR MODEL : 9DCW□-120-30 ( □ : 12V,24V,90V)
- \* HEAD MODEL : 9WD10BR(L) - 9WD60BR(L)



### ◆ INTER-DECIMAL GEARHEAD

- \* MODEL : 9XD10MW



### ◆ WEIGHT

PART	WEIGHT(Kg)
MOTOR	2.0
DECIMAL GEARHEAD	0.5
GEARHEAD	1.0

### ◆ TABLE 1

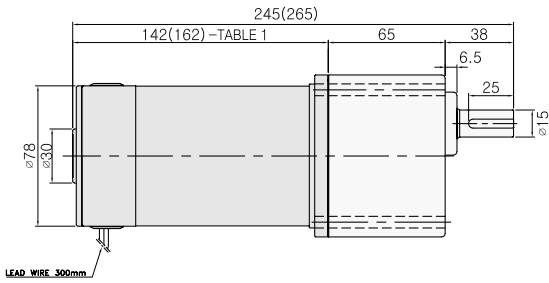
SIZE(mm)	MOTOR VOLTAGE
142	24V,90V
162	12V

## 2. Parallel Gearhead Type

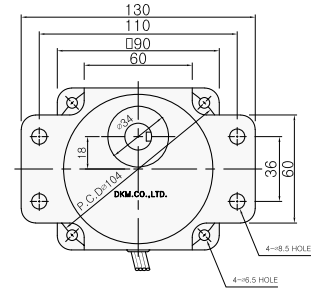
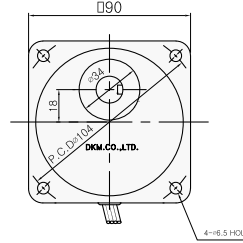
### ◆ GEARED MOTOR

\* MOTOR MODEL : 9DCP□-120-30 (□ : 12V, 24V, 90V)

\* HEAD MODEL : 9PF□ 3BH - 9PF□180BH



\* HEAD MODEL : 9PB□ 3BH - 9PB□180BH

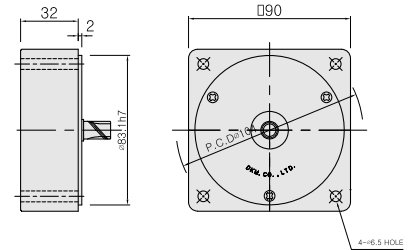
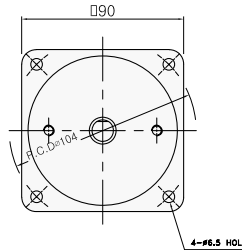
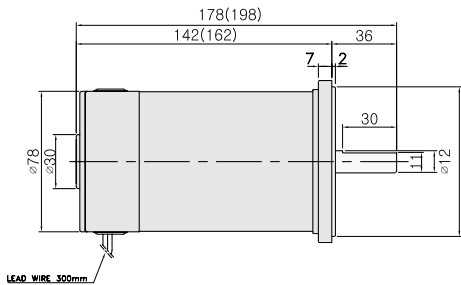


### ◆ MOTOR ONLY

\* MOTOR MODEL : 9DCD□-120-30

### ◆ INTER-DECIMAL GEARHEAD

\* MODEL : 9XD10M□



### ◆ GEARHEAD OUTPUT DIMENSION

MODEL	DIMENSION
ROUND TYPE	38 15
9P□S3BH ~9P□S180BH	38 25 15
D-CUT TYPE	38 25 14.0 15
9P□D3BH ~9P□D180BH	38 25 15
KEY TYPE	38 25 15 ★
9P□K3BH ~9P□K180BH	38 25 15

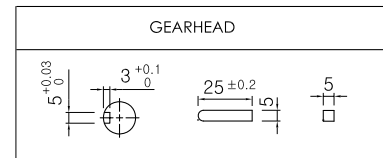
### ◆ TABLE 1

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

### ◆ MOTOR OUTPUT DIMENSION

MODEL	DIMENSION
GEAR TYPE	36 30 15 12
9DCP□-120-30	36 30 15 12
D-CUT TYPE	36 30 15 12 ★
9DCD□-120-30	36 30 15 12

### ◆ KEY SPEC



### ◆ WEIGHT

PART	WEIGHT(Kg)	
MOTOR	2.0	
DECIMAL GEARHEAD	0.5	
GEAR HEAD	9P□ 3BH - 9P□9BH	1.3
	9P□ 12.5BH - 9P□18BH	1.3
	9P□ 25BH - 9P□60BH	1.4
	9P□ 90BH - 9P□180BH	1.4

\* Above table indicates output shaft dimension made by user's request and ★ indicates the basic dimension in factory shipping.



## DC MOTOR CONTROLLER (MODEL : DSD)

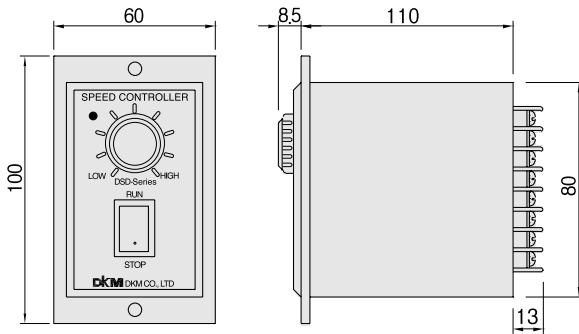
This controller is for adjusting the speed of DC Motor.(DC 90V)  
The adjusting speed by the potentiometer on front of controller is made simply.

### ● Rating and function

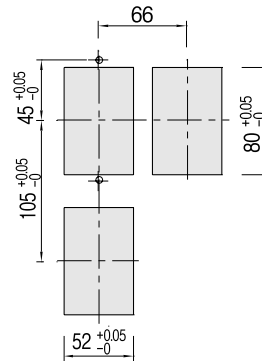
Motor output	15W ~ 90W
Workable Power	DC 90V
Consumption power	Below 3VA
Power on-off Signal	Red $\phi$ 3 LED
Ambient temperature	-10℃ ~ 55℃
Ambient humidity	35 ~ 85%RH
Weight	200g
Dimension	60(W) × 100(H) × 110(D)mm



### ● Dimension



### ● Panel



### ● Connection

