AC/DC Geared Motor and Gearbox

Gearboxes

Contents

D Gearbox

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.

The Kind of DKM Gearbox

According to Frame Size

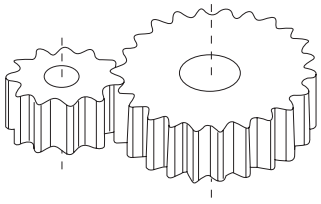
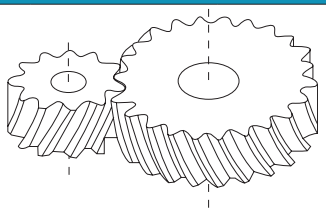
Frame Size ▫60mm Gearbox / Frame Size ▫70mm Gearbox / Frame Size ▫80mm Gearbox / Frame Size ▫90mm Gearbox / Frame Size ▫104mm Gearbox

According to Direction of Output Shaft of Gearbox

- **Parallel Gearbox**

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

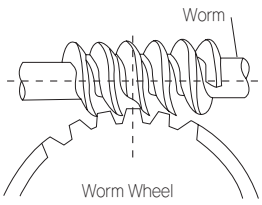
General Box Type (GB Type)	Powerful Box Type (PB Type)	Powerful Flange Type (PF Type)	High Powerful Box Type (HB Type)	High Powerful Flange Type (HF Type)	Ultra Powerful Box Type (UB Type)	Inter-decimal Gearbox
						

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.	

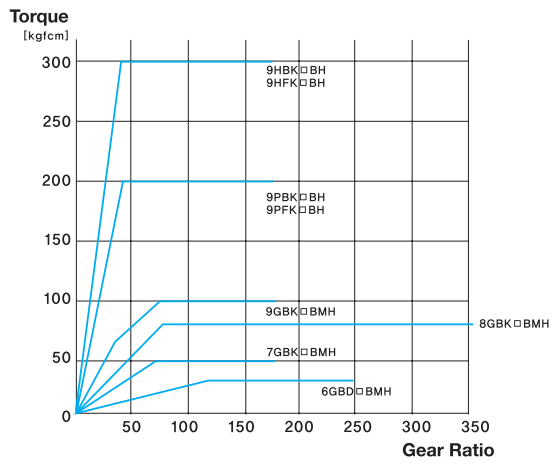
List of Gearbox Type

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	8GBK□BMH	Ball Bearing + Metal Bearing	Box Type
		40W	9GBK□BMH	Ball Bearing + Metal Bearing	Box Type
	P Type (Powerful)	40W~120W	9PBK□BH	Ball Bearing	Box Type
			9PFK□BH	Ball Bearing	Flange Type
	H Type (High Powerful)	60W~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)	15W~40W	8WD□BL/BR/BRL	Ball Bearing	–
		40W~120W	9WD□BL/BR/BRL	Ball Bearing	–
	WH Type (Worm Hollow)	60W~200W	9WHD□-030	Ball Bearing	–
		150W~200W	9WHD□-040	Ball Bearing	–
		250W, 300W 400W	10WHD□-040	Ball Bearing	–
	HC Type	90W~200W	9HC□□	Ball Bearing	–
		250W, 300W, 400W	10HC□□	Ball Bearing	–
Inter-decimal Gearbox		15W, 25W	8XD10□□	Metal Bearing	Box Type
		40W~200W	9XD10□□	Ball Bearing	Box Type

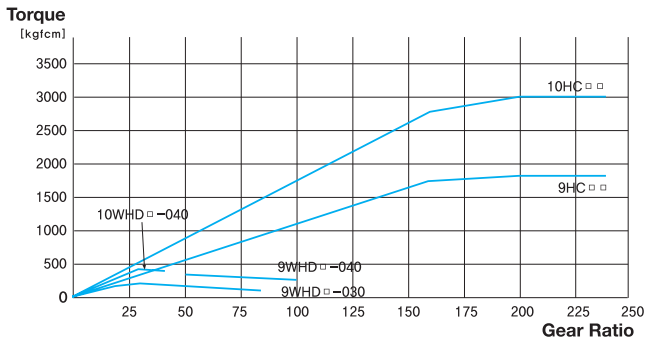
Maximum Permissible Torque and Efficiency of Gearbox

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 Gearbox

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	81%											73%					66%											
7GBK□BMH																												
8GBK□BMH																												
9GBK□BMH																												
9PB(F)K□BH	81%								73%				66%					59%										
9HB(F)K□BH																												
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	60%								55%						
9WHD□-040															
10WHD□-040															

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

Speed and Direction of Rotations

Speed

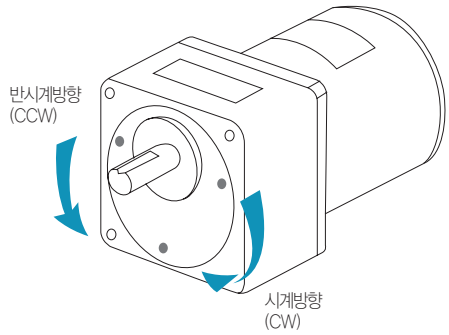
This refers to the speed of rotation in the gearbox output shaft. The speed is calculated by dividing the motor's synchronous speed by the gear ratio. The actual speed, according to the load condition, is 2~20% less than the displayed value.
The speed is calculated with the following equation:

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

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

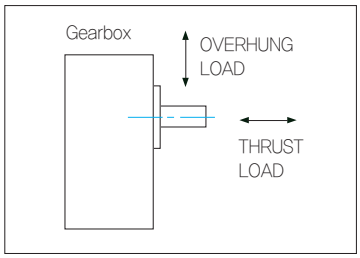
- Standard Life Expectancy

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.

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

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
평Belt	2.5

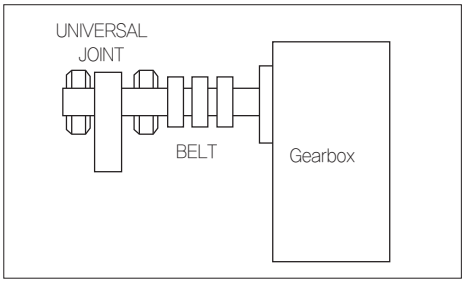
D Gearbox

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	1~6	6	3
	25~250	6~30	15	
7GBK□BMH	3 ~ 18	3~18	10	4
	20 ~ 200	20~50	20	
8GBK□BMH	3 ~ 18	2~25	12	5
	20 ~ 360	30~80	24	
9GBK□BMH	2 ~ 18	4~40	30	10
	20 ~ 200	40~100	37	
9PBK□BH 9PFK□BH	2 ~ 10	8~40	45	15
	12.5 ~ 20	40~80	52	
	25 ~ 200	50~200	60	
9HBK□BH/9HFK□BH	3 ~ 200	18~300	55	
10UBK□BH	3 ~ 60	50~400	55	20
	90 ~ 180	400	65	
8WD□BL/BR/BRL	10 ~ 18	10~29	8	–
	25 ~ 60	21~72	15	
9WD□BL/BR/BRL	10 ~18	23~130	20	–
	25 ~ 60	49~170	25	
9WHD□-030	5~80	20~214	100	–
9WHD□-040	50 ~ 100	230~350	170	–
10WHD□-040	5 ~ 40	70~395		
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 above allowable value, 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 a leaf is shaking
- 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

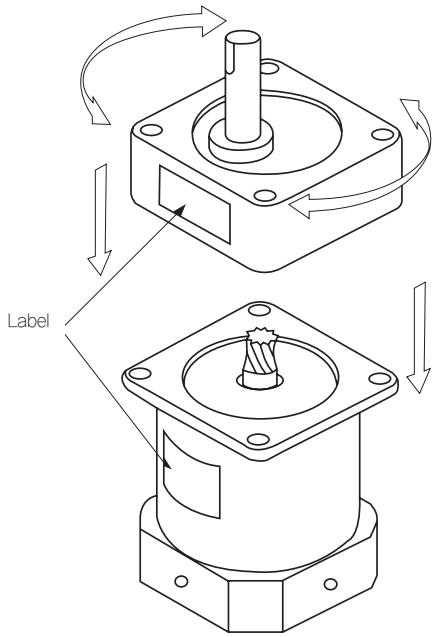
- **Noise under No Load**
  The backlash noise depends on the situation of load. For example, in case of rotation at no load, gear could pop and crash between them therefore there could be little vibration and it could cause noise. This noise can be restrained and controlled by carrying some friction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

- **Noise when mounted with load**
  When mounting is not good in the mounting plate(bracket), there could be some noise by vibration caused by eccentric force. In this case, please check the mounting situation.

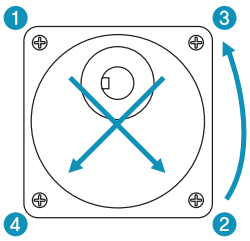
- **Noise of Damaged Gear**
  When attaching a gearbox to a motor, users have to turn the gearbox slowly according to the shape of pinion. Otherwise gear could get damaged by the effect of overloading sequences. Also, there may some abnormal noise in gearbox. So please handle the gearbox with special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

Assembly Method of Motor and Gearbox

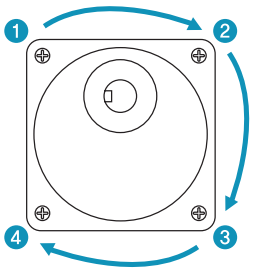
- To assemble the motor and the gearbox, adjust the assembling faces together in such a way as shown in the figure on the right and turn slowly to complete the assembly. When doing the assembly, special care should be taken neither to exert excessive force on the motor shaft nor to hit the inside of 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 Gearbox

Parallel Gearbox

G Type General Box Type Gearbox

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

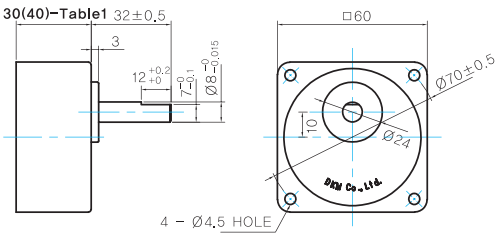
* These are reference figures when the gearbox is attached to the induction motor.

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

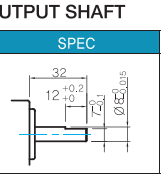
1) Enter the gear ratio in the box (□) within the garbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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) Caculation of N.m ≒ kgfcm X 0.98

Dimensions

● Model: 6GBD□MH



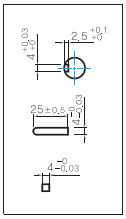
● GEARBOX OUTPUT SHAFT

MODEL	SPEC
D-CUT TYPE	

● 30(40)-Table1

SIZE(mm)	GEAR RATIO
30	6GBD3MH - 6GBD18MH
40	6GBD20MH - 6GBD250MH

● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
6GBD3MH ~ 6GBD18MH	0.3
6GBD20MH ~ 6GBD40MH	0.32
6GBD50MH ~ 6GBD250MH	0.34

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

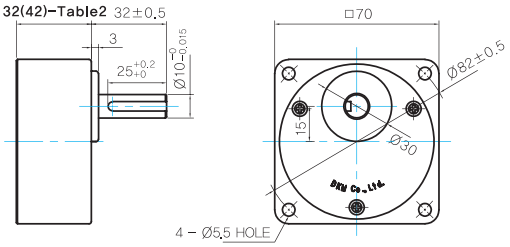
* These are reference figures when the gearbox is attached to the induction motor.

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

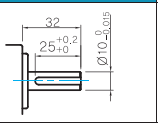
1) Enter the gear ratio in the box (□) within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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) Caculation of N.m ≒ kgfcm X 0.98

Dimensions

● Model: 7GBK□BMH



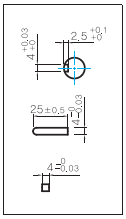
● GEARBOX OUTPUT SHAFT

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

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

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

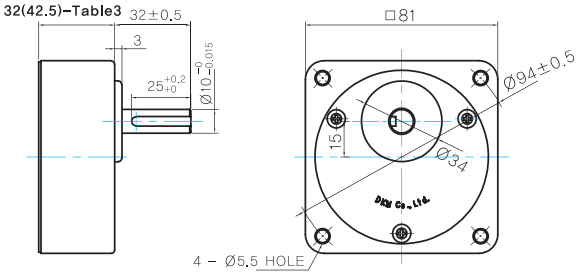
Motor Output	Gear Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
	60Hz	r/min	600	500	360	300	240	200	180	144	120	100	90	72	60
	50Hz		500	417	300	250	200	167	150	120	100	83	75	60	50
15W	60Hz	kgfcm	2.2	2.7	3.7	4.4	5.5	6.7	7.4	9.2	11.1	13.3	13.3	16.7	20.0
	50Hz		2.6	3.2	4.4	5.3	6.6	7.9	8.8	11.0	13.1	15.8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

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

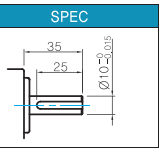
1) Enter the gear ratio in the box (□) within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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) Caculation of N.m ≒ kgfcm X 0.98

Dimensions

● Model: 8GBK□BMH



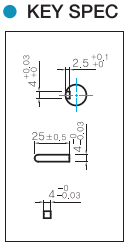
● GEARBOX OUTPUT SHAFT

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 Gearbox

Parallel Gearbox

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

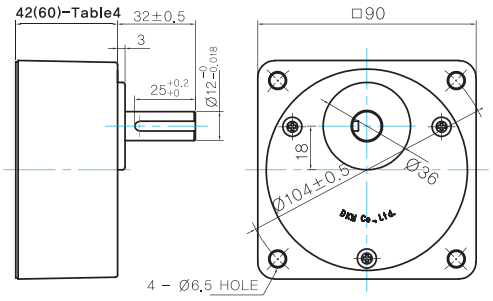
* These are reference figures when the gearbox is attached to the induction motor.

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

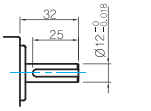
1) Enter the gear ratio in the box (□) within the gearbox model name.
2) A colored background indicates the gear shaft rotation in the same direction as the motor shaft; a white background indicates the rotation in the opposite direction.
3) The rotating speed is calculated by dividing the motor's synchronous 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) Caculation of N.m ≒ kgfcm X 0.98

Dimensions

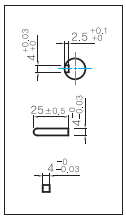
● Model: 9GBK□BMH



● GEARBOX OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● KEY SPEC



● 42(60)-Table4

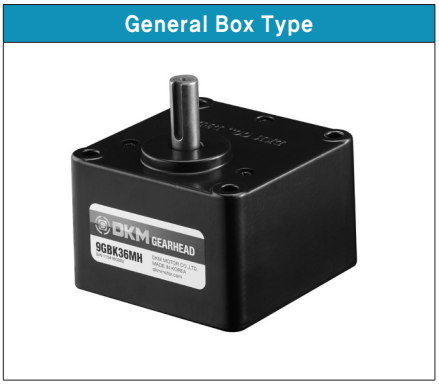
SIZE(mm)	GEAR RATIO
42	9GBK2BMH - 9GBK18BMH
60	9GBK20BMH - 9GBK200BMH

● WEIGHT

Model	WEIGHT(Kg)
9GBK2BMH ~ 9GBK18BMH	0.78
9GBK20BMH ~ 9GBK40BMH	1.1
9GBK50BMH ~ 9GBK200BMH	1.2

Gearbox Image

General Box Type

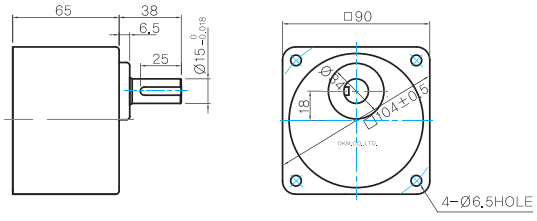


P Type

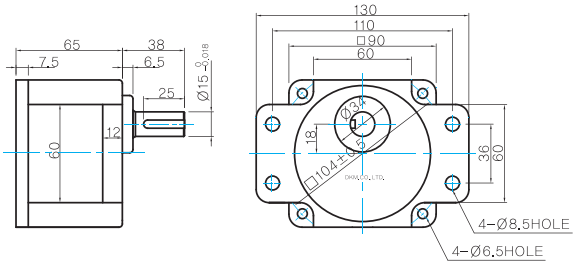
Powerful Box /
Flange Type Gearbox

Dimensions

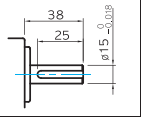
● Model: 9PBK□BH



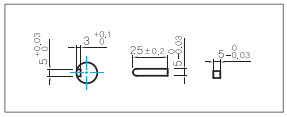
● Model: 9PFK□BH



● 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	1.3
9PB(F)K25BH ~ 9PB(F)K60BH	1.45
9PB(F)K75BH ~ 9PB(F)K200BH	1.47

Gearbox Images

9PBK□BH

9PFK□BH

9PBK□BH/9PBK□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) Caculation of N.m ≒ kgfcm X 0.98

D Gearbox

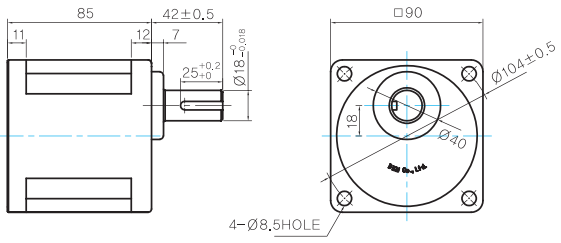
Parallel Gearbox

H Type

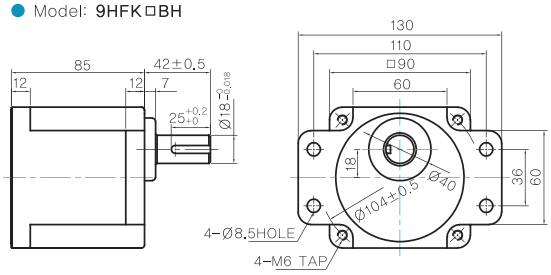
High Powerful Box /
Flange Type Gearbox

Dimensions

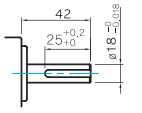
● Model: 9HBK□BH



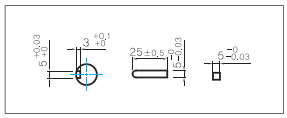
● Model: 9HFK□BH



● 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	1.6
9HB(F)K25BH ~ 9HB(F)K60BH	1.7
9HB(F)K75BH ~ 9HB(F)K200BH	1.8

Gearbox Images

9HBK□BH

9HFK□BH

9HBK□BH/9HFK□BH - Max. Permissible Torque

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

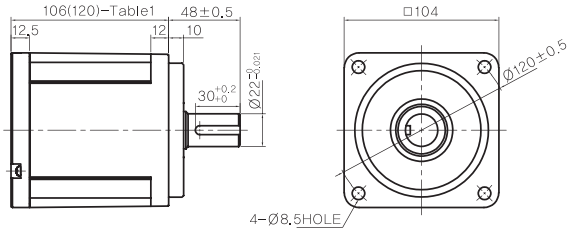
Motor Output	Gear Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	60Hz	r/min	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
	50Hz		500	417	300	250	200	167	150	120	100	83	75	60	50	42	37.5	30	25	20	17	15	12.5	10	8	7.5
60W	60Hz	kgfcm	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) Caculation of N.m ≒ kgfcm X 0.98

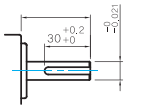
U Type Ultra Powerful Box / Type Gearbox

Dimensions

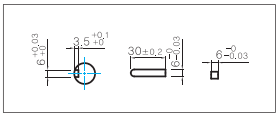
● Model: 10UBK□BH



● MOTOR OUTPUT SHAFT

MODEL	SPEC
KEY TYPE	

● KEY SPEC



WEIGHT

PART		WEIGHT(Kg)
GEAR BOX	10UBK3BH ~ 10UBK9BH	2.0
	10UBK10BH ~ 10UBK15BH	2.15
	10UBK20BH ~ 10UBK60BH	2.3
	10UBK90BH ~ 10UBK180BH	2.5

Gearbox Images

10UBK□BH

10UBK□BH - Max. Permissible Torque

400W 3Φ 60HZ

Motor Model	Gearbox Model	Gear Ratio	3	5	9	10	15	20	25	30	40	50	60	90	100	120	150	180
		r/min	600	360	200	180	120	90	72	60	45	36	30	20	18	15	12	10
10IDG6-400FU-T	10UBK□BH	kgfcm	60	100	180	185	275	300	300	300	350	350	400	400	400	400	400	400
		N.m	5.88	9.8	17.6	18.1	26.7	29.4	29.4	29.4	34.3	34.3	39.2	39.2	39.2	39.2	39.2	39.2

300W 1Φ 60HZ

Motor Model	Gearbox Model	Gear Ratio	3	5	9	10	15	20	25	30	40	50	60	90	100	120	150	180
		r/min	600	360	200	180	120	90	72	60	45	36	30	20	18	15	12	10
10IDGD-300FU-T & 10IDG8-300FU-T	10UBK□BH	kgfcm	45	75	135	140	205	250	300	300	350	350	400	400	400	400	400	400
		N.m	4.41	7.35	13.2	13.7	20.1	24.5	29.4	29.4	34.3	34.3	39.2	39.2	39.2	39.2	39.2	39.2

300W 3Φ 50HZ

Motor Model	Gearbox Model	Gear Ratio	3	5	9	10	15	20	25	30	40	50	60	90	100	120	150	180
		r/min	500	300	167	150	100	75	60	50	37.5	30	25	16.7	15	12.5	10	8
10IDG7-300FU-T & 10IDG8-300FU-T	10UBK□BH	kgfcm	55	95	170	170	250	300	300	300	350	350	400	400	400	400	400	400
		N.m	5.39	9.31	16.7	16.7	24.5	29.4	29.4	29.4	34.3	34.3	39.2	39.2	39.2	39.2	39.2	39.2

250W 1Φ 50HZ

Motor Model	Gearbox Model	Gear Ratio	3	5	9	10	15	20	25	30	40	50	60	90	100	120	150	180
		r/min	500	300	167	150	100	75	60	50	37.5	30	25	16.7	15	12.5	10	8
10IDGE-250FU-T	10UBK□BH	kgfcm	50	80	145	150	220	270	335	400	400	400	400	400	400	400	400	400
		N.m	4.9	7.84	14.2	14.7	21.6	26.5	32.8	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2

1.10IDG6-400F : 3Phase 220/380V 60Hz 2.10IDG7-300F : 3Phase 230/400V 50Hz
3.10IDG8-300F : 3Phase 440V 50Hz 4.10IDGE-250F : 1Phase 220V 50Hz 5.10IDGD-300F : 1Phase 220V 60Hz

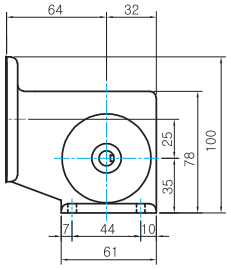
D Gearbox

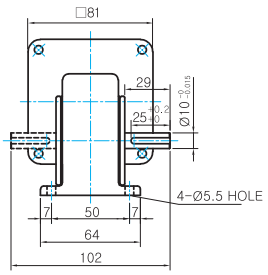
Right-Angle Gearbox

W Type Worm Solid Type Gearbox

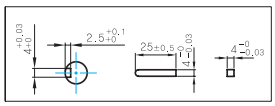
Dimensions

● Model: 8WD□BL/BR/BRL





● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
8WD□BL/BR/BRL	0.68

8WD□BL/□BR/□BRL Max. Permissible Torque

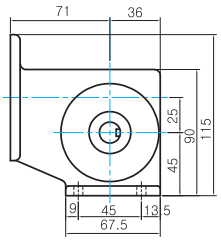
* These are reference figures when the gearbox is attached to the induction motor.

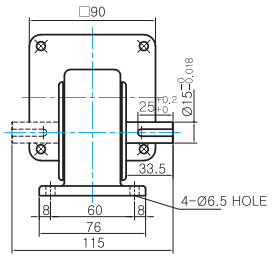
Motor Output	감속비		10	12	15	18	25	30	36	50	60
	60Hz	r/min	180	150	120	100	72	60	50	36	30
	50Hz		150	125	100	83	60	50	42	30	25
15W	60Hz	kgfcm	9.8	11.5	13.9	16.0	21.0	23.8	27.6	36.0	39.6
	50Hz		11.5	13.4	16.2	18.6	24.5	27.7	32.3	42.0	46.2
25W	60Hz		12.5	14.6	17.6	20.3	26.6	30.1	35.1	45.7	50.2
	50Hz		14.8	17.3	20.8	24	31.6	35.7	41.6	54.1	59.5

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) Caculation of N.m ≒ kgfcm X 0.98

Dimensions

● Model: 9WD□BL/BR/BRL





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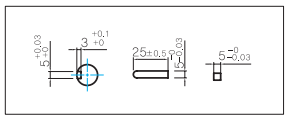


● WEIGHT

Model	WEIGHT(Kg)
9WD□BL/BR/BRL	1.0

9WD□BL/□BR/□BRL Max. Permissible Torque

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

Motor Output	감속비		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	23.0	26.9	32.3	37.3	49.0	55.4	64.5	84.0	92.4
	50Hz		27.9	32.6	39.3	45.3	59.5	67.3	78.3	102.0	112.2
60W	60Hz		34.4	40.3	48.5	55.9	73.5	83.2	96.8	126.0	122.4
	50Hz		42.6	49.9	60.1	69.3	91.0	103.0	119.8	142.9	122.4
90W	60Hz		55.8	65.3	78.5	90.6	119.0	134.6	153.1	142.9	122.4
	50Hz		60.7	71.0	85.5	98.6	129.5	146.5	153.1	142.9	122.4
120W	60Hz		62.3	73.0	87.8	101.2	133.0	150.5	153.1	142.9	122.4
	50Hz		80.4	94.1	113.2	130.5	142.9	163.3	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) Caculation of N.m ≒ kgfcm X 0.98

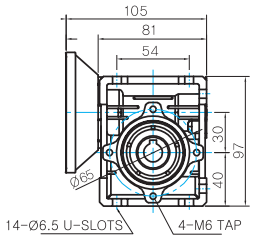
Gearbox Images

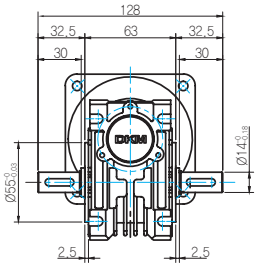
8(9)WD□BL	8(9)WD□BR	8(9)WD□BRL
		

WH Type Worm Hollow Type Gearbox

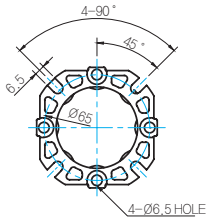
Dimensions

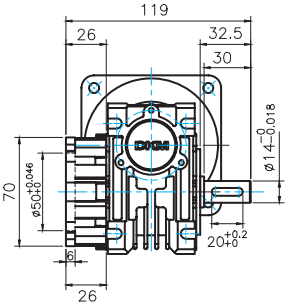
● Model: 9WHD□-030





● FLANGE





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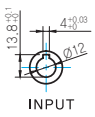
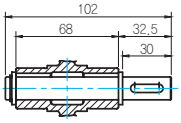
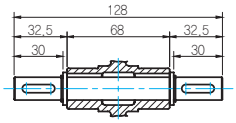


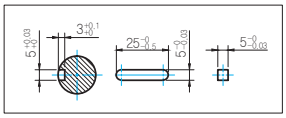


Unidirectional



Bi-directional

● KEY SPEC



● WEIGHT

Model	WEIGHT(Kg)
9WHD□-030	1.2

* The output flange and shaft are sold separately

9WHD□-030 Max. Permissible Torque

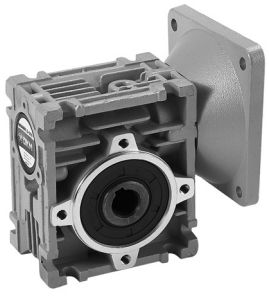
* These are reference figures when the gearbox is attached to the induction motor.

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) Caculation of N.m ≒ kgfcm X 0.98

Gearbox Image

9WHD□-030

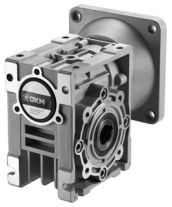
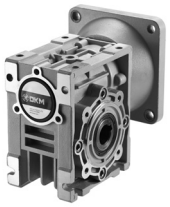


D Gearbox

Right-Angle Gearbox

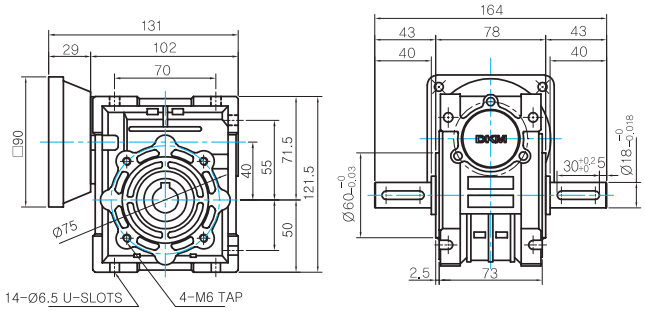
WH Type Worm Hollow Type Gearbox

Gearbox Image

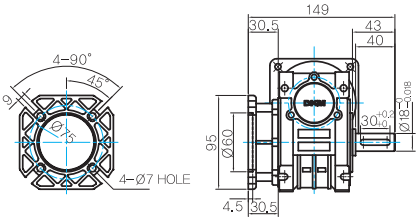
9WHD□-040	10WHD□-040
	

Dimensions

● Model: 9WHD□-040



● FLANGE



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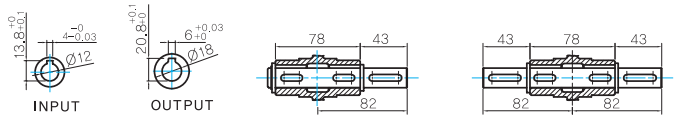
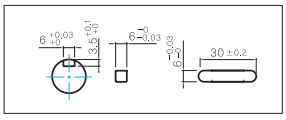


● KEY SPEC

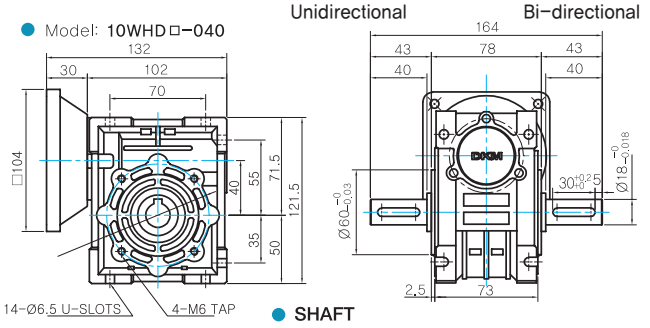


● WEIGHT

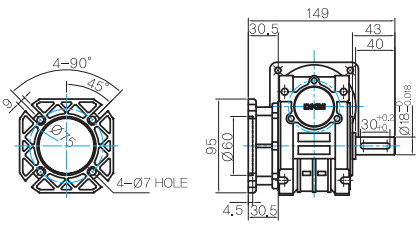
Model	WEIGHT(Kg)
9WHD□-040	2.1

* The output flange and shaft are sold separately

● Model: 10WHD□-040



● FLANGE



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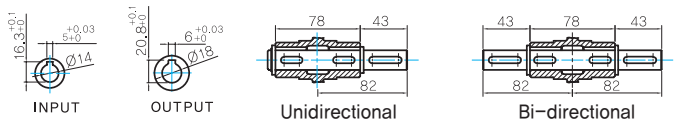

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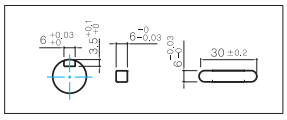


● WEIGHT

Model	WEIGHT(Kg)
10WHD□-040	2.2

* The output flange and shaft are sold separately

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	30	25	18.75	15
	50Hz		36	30	22.5	18
150W	50Hz	kgfcm	275	305	295	270
		N.m	28.1	31.1	30.1	27.6
	60Hz	kgfcm	230	255	295	270
		N.m	23.5	26.0	30.1	27.6
180W	50Hz	kgfcm	340	330	295	270
		N.m	34.7	33.7	30.1	27.6
	60Hz	kgfcm	265	300	295	270
		N.m	27.0	30.6	30.1	27.6
200W	50Hz	kgfcm	350	330	295	270
		N.m	35.7	33.7	30.1	27.6
	60Hz	kgfcm	315	330	295	270
		N.m	32.1	33.7	30.1	27.6

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
	Hz	r/min	300	200	150	100	75	60	50	37.5
			360	240	180	120	90	72	60	45
250W	50Hz	kgfcm	70	100	130	185	240	290	325	305
300W	60Hz		80	115	150	215	275	335	375	350
	50Hz		65	95	125	175	225	270	300	285
400W	60Hz		85	125	160	230	295	355	395	375

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) Caculation of N.m ≒ kgfcm X 0.98

HC Type

Helicross
Type Gearbox

Gearbox Image

9HC□□ / 10HC□□

9HC□□ Max. permission 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	18.75	15	12.5	9.4	7.5	6.7	6.3
90W	60Hz	kgfcm	60	80	100	120	160	200	240	320	400	480	640	800	900	960
	50Hz		71.1	94.8	119	142	190	237	284	379	474	569	758	948	1067	1138
120W	60Hz		80	107	133	160	213	267	320	427	533	640	853	1067	1200	1280
	50Hz		94.8	126	158	190	253	316	379	506	632	758	1011	1264	1422	1517
150W	60Hz		103	138	172	296	275	344	413	550	688	826	1101	1376	1548	1651
	50Hz		123	164	205	246	328	410	492	656	820	984	1313	1641	1800	1800
180W	60Hz		120	160	200	240	320	400	480	640	800	960	1280	1600	1800	1800
	50Hz		148	197	246	295	394	492	591	788	984	1181	1575	1800	1800	1800
200W	60Hz		138	183	229	275	367	459	550	734	917	1101	1468	1800	1800	1800
	50Hz		164	219	273	328	438	547	656	875	1094	1313	1750	1800	1800	1800

10HC□□ Max. permission torque

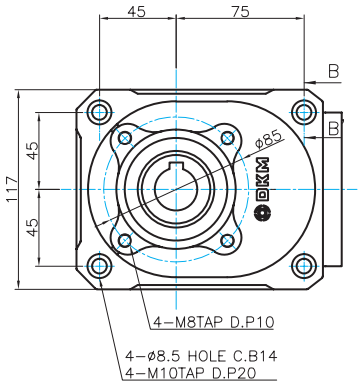
* These are reference figures when the gearbox is attached to the induction motor.

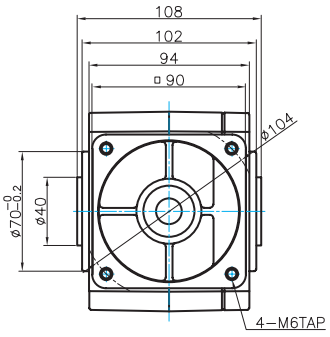
Motor Model	Gear Ratio		15	20	25	30	40	50	60	80	100	120	160	200	225	240
	60Hz	r/min	120	90	72	60	45	36	30	22.5	18	15	11.25	9	8	7.5
	50Hz		100	75	60	50	37.5	30	25	18.75	15	12.5	9.4	7.5	6.7	6.3
250W	50Hz	kgfcm	213	284	356	427	569	711	853	1138	1422	1706	2275	2844	3000	3000
300W	60Hz		200	267	333	400	533	667	800	1067	1333	1600	2133	2666	3000	3000
	50Hz		246	328	410	492	656	820	984	1313	1641	1969	2625	3000	3000	3000
400W	60Hz		267	356	444	533	711	889	1067	1422	1778	2133	2844	3000	3000	3000

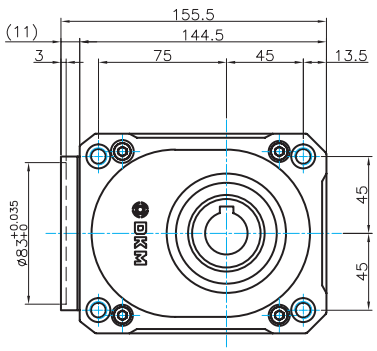
1) Enter the gear ratio in the box (□) within the gearbox model name.
2) The rotating speed is calculated by dividing the motor's synchronous speed (50Hz: 1,500r/min, 60Hz: 1,800r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.
3) Caculation of N.m ≒ kgfcm X 0.98

Dimensions (9HC□□)

● Gear Ratio 1/15~1/60



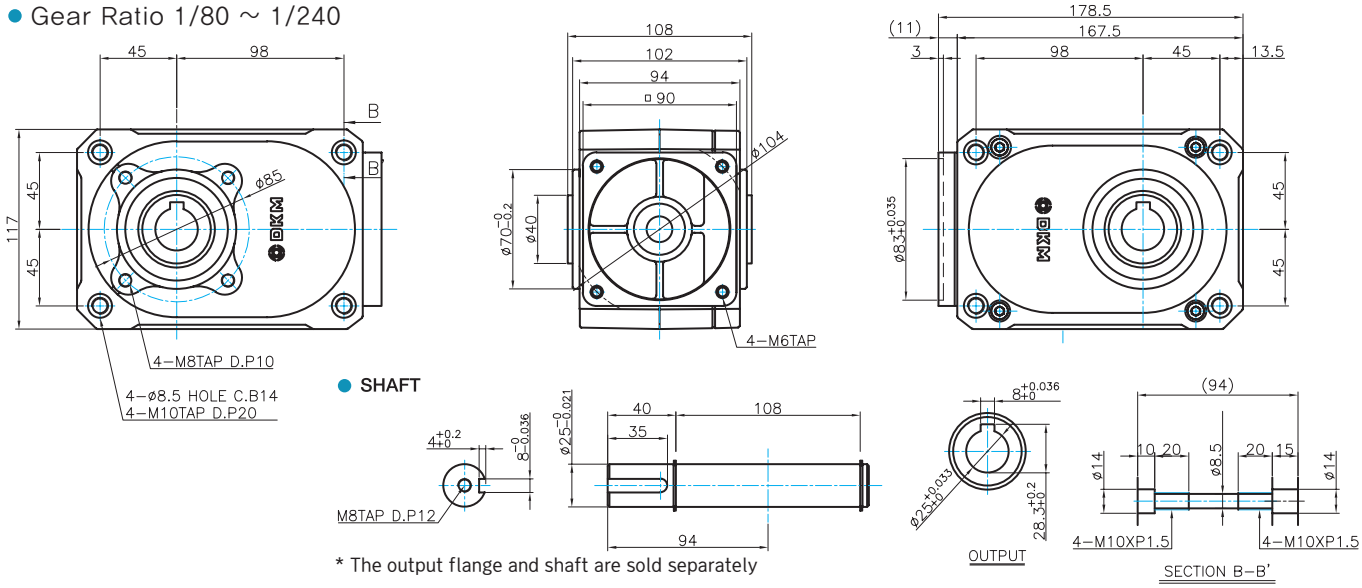




D Gearbox

Right-Angle Gearbox

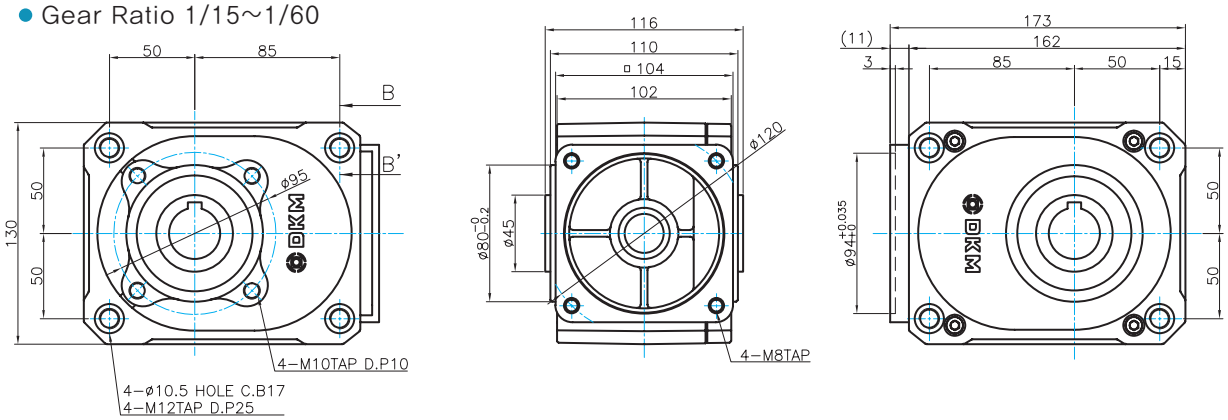
● Gear Ratio 1/80 ~ 1/240



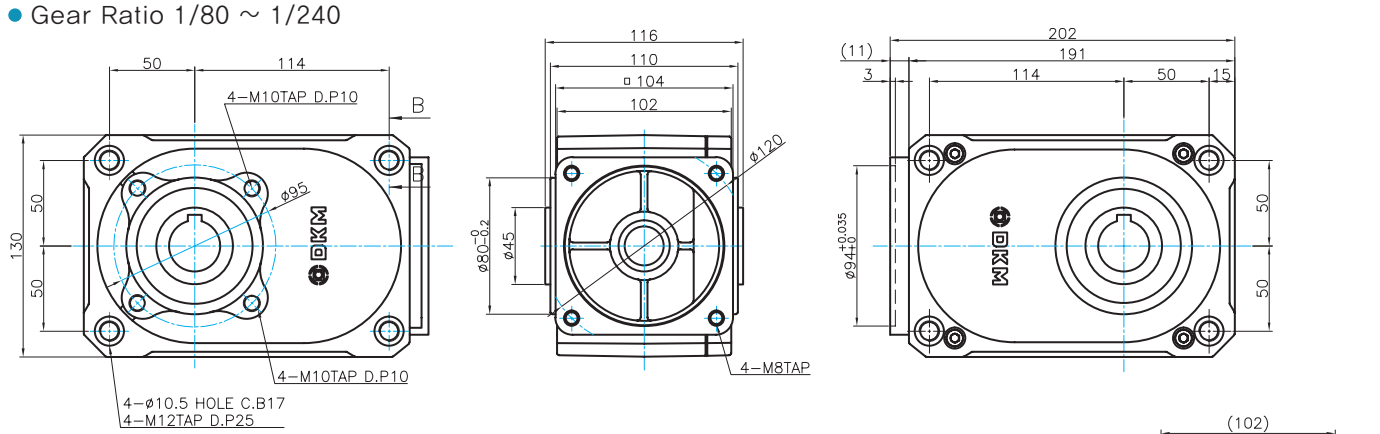
* The output flange and shaft are sold separately

Dimensions (10HC□□)

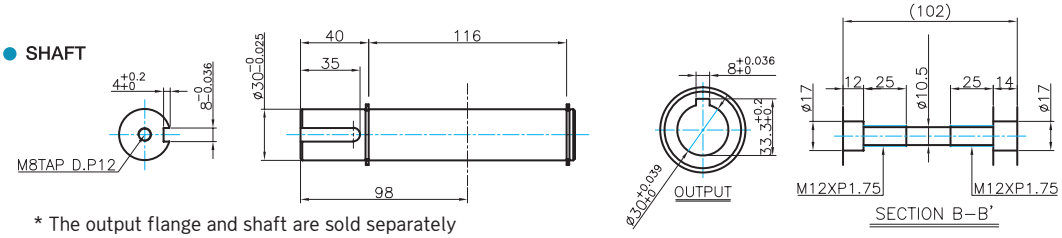
● Gear Ratio 1/15~1/60



● Gear Ratio 1/80 ~ 1/240



● SHAFT



* The output flange and shaft are sold separately

Inter-decimal Gearbox

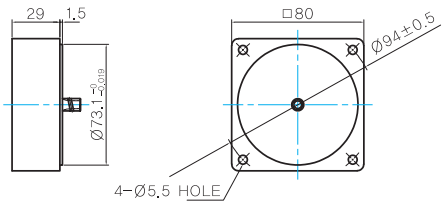
Frame Size 80mm Model : 8XD10□□
Frame Size 90mm Model : 9XD10□□

* Enter the model type of attaching gearbox (G/P/Z) in the box □ within the model name.
8XD10□□: GG, GW
9XD10□□: GG, GW, GP,GH, GZ, PP, PW, PH, PZ

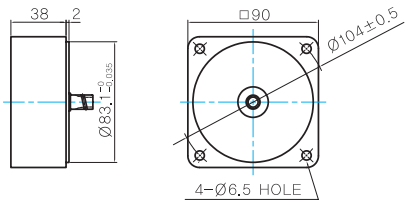
- In case of requiring high gear reduction ratio that cannot be generated by single gearbox, please use Inter-decimal gearbox with a general gearbox.
- Please be advised that in this case only revolutionspeed of output shaft will be reduced by 10:1 without increasing of maximum permissible torque.

Dimensions

● Model: 8XD10□□



● Model: 9XD10□□



● WEIGHT

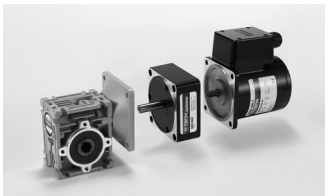
Model	WEIGHT(Kg)
8XD10□□	0.45
9XD10□□	0.6

How to Attach an Inter-decimal Gearbox?


G type Motor + 9XD10GG + G type Gearbox


G type Motor + 9XD10GP + P type Gearbox

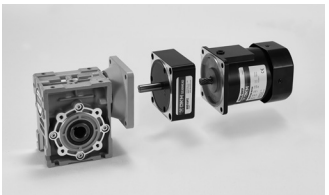

G type Motor + 9XD10GH + H type Gearbox


G type Motor + 9XD10GZ + WH type Gearbox


G type Motor + 9XD10GW + W type Gearbox


P type Motor + 9XD10PW + W type Gearbox


P type Motor + 9XD10PH + H type Gearbox


P type Motor + 9XD10PZ + WH type Gearbox


P type Motor + 9XD10PP + P type Gearbox