

KHT Series

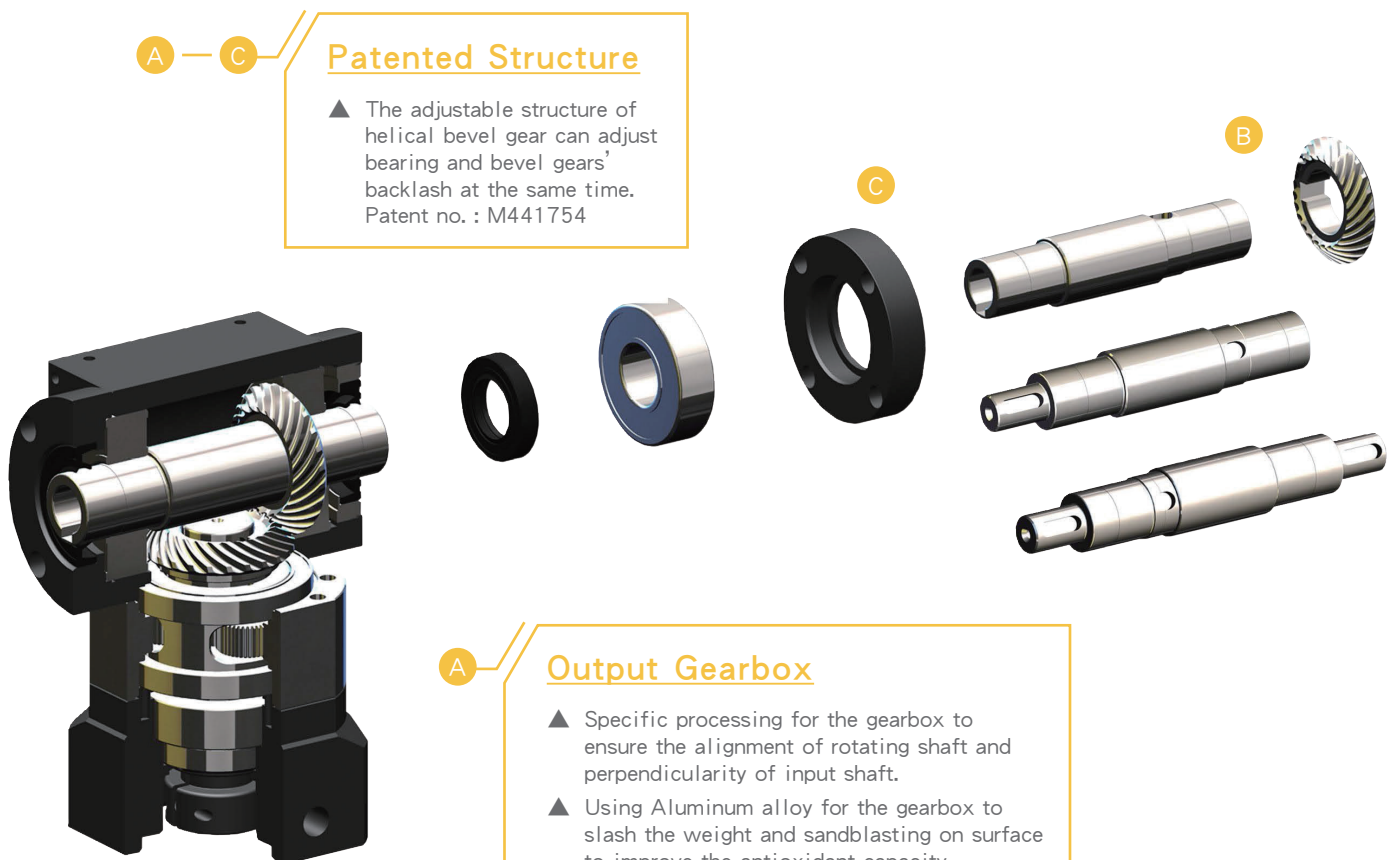
High Precision & Low Backlash
Planetary Gearboxes with Single / Both
side/ Hollow Output Shaft.



Application

KHT series can be applied to precision positioning or reciprocating motion device and can output stably to automated equipment which is operating in minimum vibratility.

Such as printing industry, pipe bender, spring machine industry, LCD inspection equipment, connected ball screw transmission mechanism... and so on.



Patented Structure

- ▲ The adjustable structure of helical bevel gear can adjust bearing and bevel gears' backlash at the same time. Patent no. : M441754

Output Gearbox

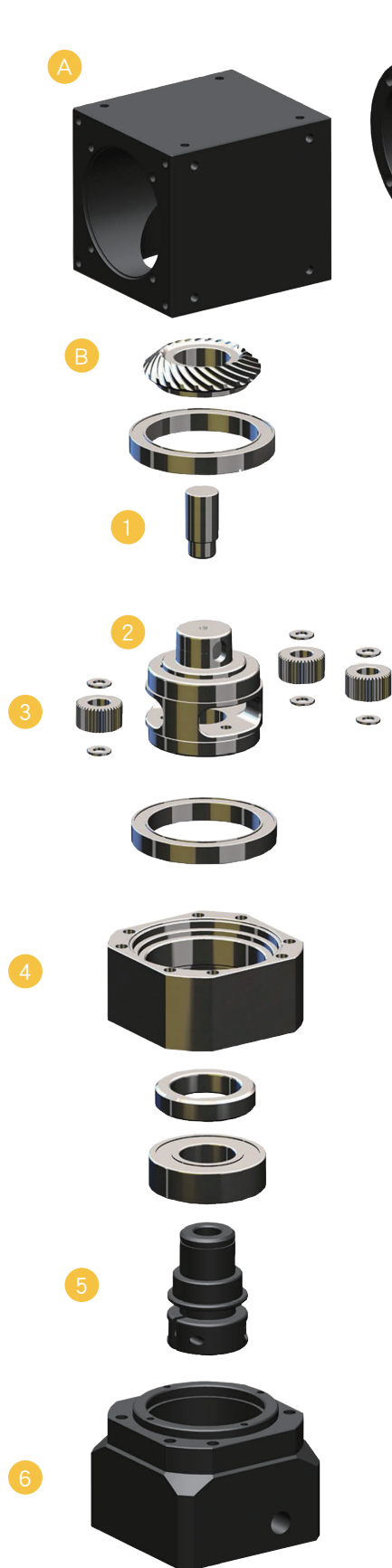
- ▲ Specific processing for the gearbox to ensure the alignment of rotating shaft and perpendicularity of input shaft.
- ▲ Using Aluminum alloy for the gearbox to slash the weight and sandblasting on surface to improve the antioxidant capacity.

Helical Bevel Gear

- ▲ Made by Ni-Cr-Mo alloy steel with carburizing processing on surface to enhance the abrasion and impact resistance.

Output Shaft

- ▲ Made by Ni-Cr-Mo alloy steel with electroless plating on surface for corrosion resistance.
- ▲ Available with hollow shaft (KHT-H), single-side shaft (KHT-S1) & both-side shaft (KHT-S2).



1

Sun Gear

- ▲ Made by Ni-Cr-Mo alloy steel and carburizing process on surface for the high abrasion and impact resistance.
- ▲ Tooth skiving to enhance gear precision and to lower noise.

2

Reduced Shaft

- ▲ Integrated design and structure rigidity to ensure large torque output.

3

Planetary Gear

- ▲ Made by Ni-Cr-Mo alloy steel and carburizing process on surface for the high abrasion and impact resistance.
- ▲ Tooth skiving to enhance gear precision and to lower noise.
- ▲ Needle roller without cage internal the gear for higher abrasion resistance and strength.

4

Gearbox

- ▲ With Cr-Mo alloy steel and integrated design for internal gear to make sure the high precision and large output torque.
- ▲ Gearbox surface with electroless plating for corrosion resistance.

5

Input Shaft

- ▲ Modular design can apply to various type of servomotors.
- ▲ Shaft surface with blacken process.

6

Connecting Flange

- ▲ Modular design can apply to various type of servomotors.
- ▲ Sandblasting or higher-grade painting on surface to improve the antioxidant capacity.

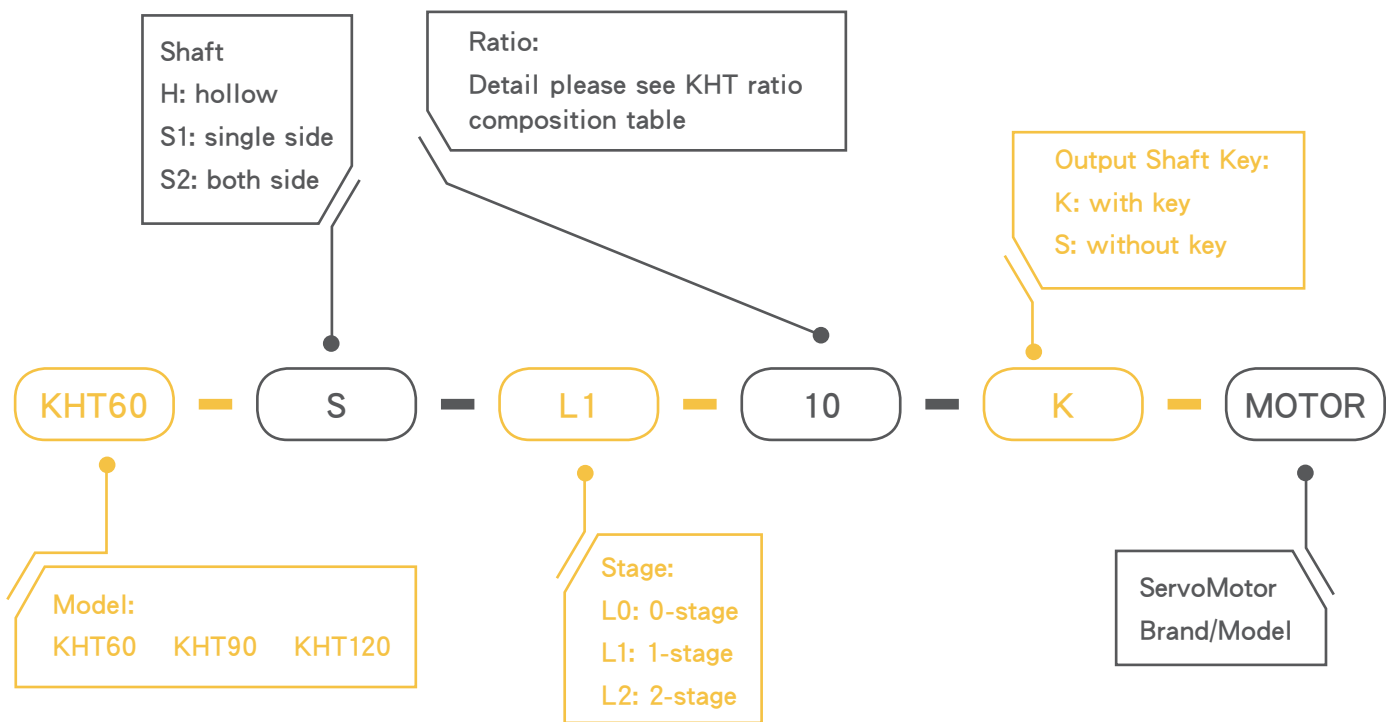
KHT

High Precision Planetary Gearbox Reducer

/ Model Code / Ratio Composition Table



Reducer Model(KHT)



KHT Ratio Composition Table

Model	Ratios Table for Every Stage		
	Ratio of 0 Stage (L0)	Ratio of 1 Stage (L1)	Ratio of 2 Stages (L2)
KHT60	1	3 , 4 , 5 , 7 , 10	15 , 20 , 25 , 30 , 35 , 40 , 50 , 70 , 100
KHT90	1	3 , 4 , 5 , 7 , 10	15 , 20 , 25 , 30 , 35 , 40 , 50 , 70 , 100
KHT120	1	3 , 4 , 5 , 7 , 10	15 , 20 , 25 , 30 , 35 , 40 , 50 , 70 , 100

KHT Reducer Moment of Inertia Table

Moment of Inertia J_1 , kg*cm ²	Stage	Ratio	KHT60	KHT90	KHT120
	L0	1	0.274	2.14	6.05
L1	3	0.14	1.25	3.28	
	4	0.11	1.14	2.89	
	5	0.10	1.11	2.81	
	6	—	—	—	
	7	0.10	1.10	2.76	
	8	—	—	—	
	9	—	—	—	
L2	10	0.10	1.10	2.74	
	15	—	1.11	2.81	
	20	—	1.11	2.81	
	25	—	1.11	2.81	
	30	—	1.10	2.74	
	35	0.10	1.10	2.76	
	40	—	1.10	2.74	
	50	—	1.10	2.74	
	70	—	1.10	2.74	
	100	—	1.10	2.74	

KHT Series Technical Specifications

Specification	Unit	Stage	Ratio	KHT60	KHT90	KHT120
Reducer Nominal Output Torque T_{2N}	Nm	L0	1			
	Nm	L1	3-10	15	58	114
	Nm	L2	15-100			
Emergency Stop Torque	Nm	L0 , L1 , L2	1-100	1.5 Times of Nominal Output Torque		
Nominal Input Speed n_{1N}	rpm	L0 , L1 , L2	1-100	3 , 000	3 , 000	3 , 000
Max. Input Speed n_{1B}	rpm	L0 , L1 , L2	1-100	6 , 000	6 , 000	6 , 000
Standard Backlash M	arcmin	L0	1	≤ 6	≤ 6	≤ 6
		L1	3-10	≤ 8	≤ 8	≤ 8
		L2	15-100	≤ 10	≤ 10	≤ 10
Max. Radial Load F_{rB}	N	L0	1	810	1 , 220	2 , 080
	N	L1 , L2	3-100	1 , 108	1 , 688	2 , 900
Max. Input Speed F_{aB}	N	L0	1	381	610	1 , 040
	N	L1 , L2	3-100	584	844	1 , 450
Warranty	M	L0 , L1 , L2	1-100	18 Months (Under Normal Usage)		
Average Operation Time	Hr	L1 , L2	3-100	20 , 000		
Efficiency of Full Loading η	%	L0	1	≥ 98%		
		L1	3-10	≥ 95%		
		L2	15-100	≥ 92%		
Net Weight	kg	L0	H (Hollow)	1.85	4.29	9.05
			S1 (Single-side shaft)	1.98	4.65	9.66
			S2 (Both-side shaft)	2	4.71	9.77
		L1	H (Hollow)	2.05	6.47	13.8
			S1 (Single-side shaft)	2.18	6.83	14.41
			S2 (Both-side shaft)	2.2	6.89	14.52
		L2	H (Hollow)	2.35	7.6	16.4
			S1 (Single-side shaft)	2.48	7.95	17.01
S2 (Both-side shaft)	2.5	8.01	17.12			
Operating Temp	°C	L0 , L1 , L2	1-100	-10°C ~+90°C		
Lubrication		L0 , L1 , L2	1-100	Lithium Complex Synthetic Lubrication		
Mounting Position		L0 , L1 , L2	1-100	All Directions		
Degree of Protection		L0 , L1 , L2	1-100	IP65		
Running Noise (Number of Revolution=1500 rpm)	dBA	L0	1	≤ 73	≤ 76	≤ 79
	dBA	L1 , L2	3-100	≤ 65	≤ 65	≤ 65

1. Above relative specifications of each model most are measured on 5 : 1 gear ratio

2. Ratios : $i = n_{in} / n_{out}$

3. Backlash : Measured on 2% of nominal output torque

4. Max. Radial and Axial Load : Applied to the output shaft center, and 50% of duty time and at 100 rpm

5. Noise Level : Numeric measured on idle running in 1m distance, and at nominal input speed

High Precision Planetary Gearbox Reducer

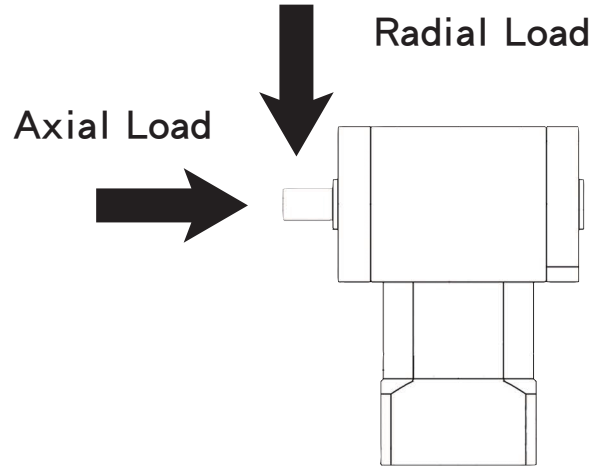
Permitted Radial & Axial Load Diagram

Permitted Radial Load :

The force exerts perpendicular to output shaft

Permitted Axial Load :

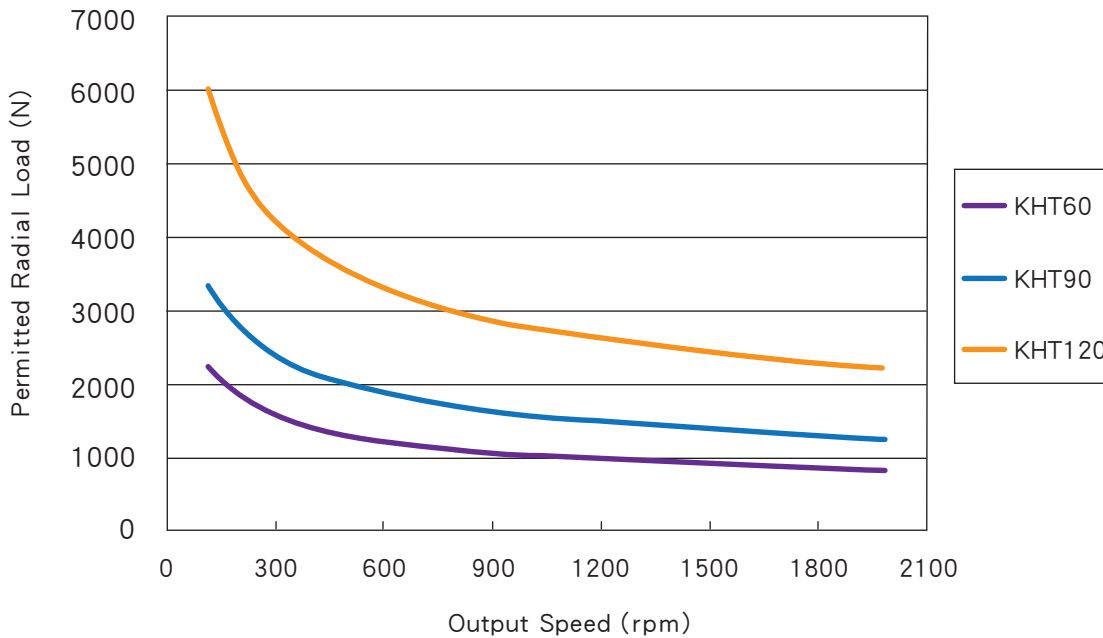
The force exerts parallel to output shaft



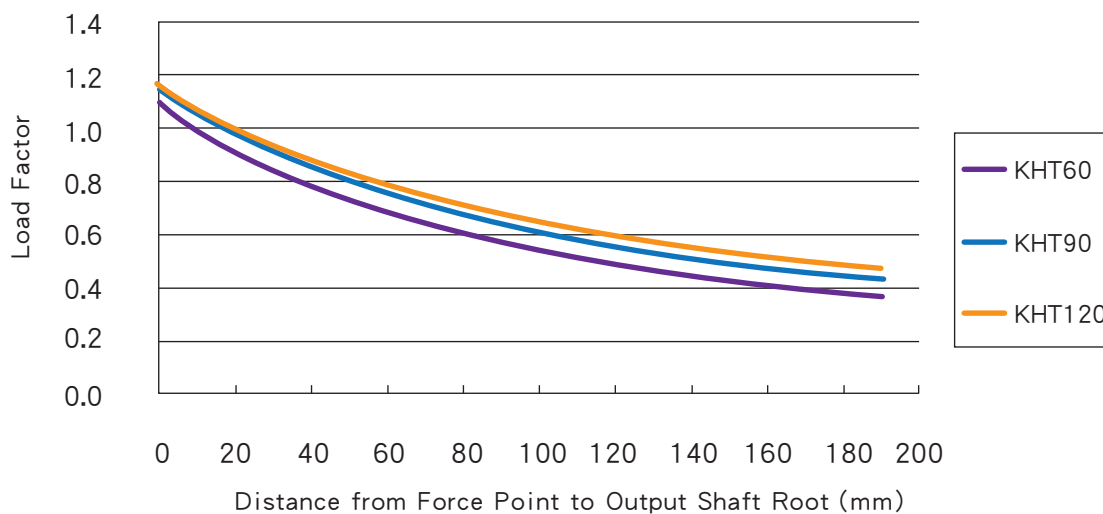
The radial/axial loads are relate to both speed and force point on output shaft.

- a: if the output shaft run faster, the radial/axial loads become lower.
- b: if the force point get farther from the shaft root, the radial/axial loads get lower.

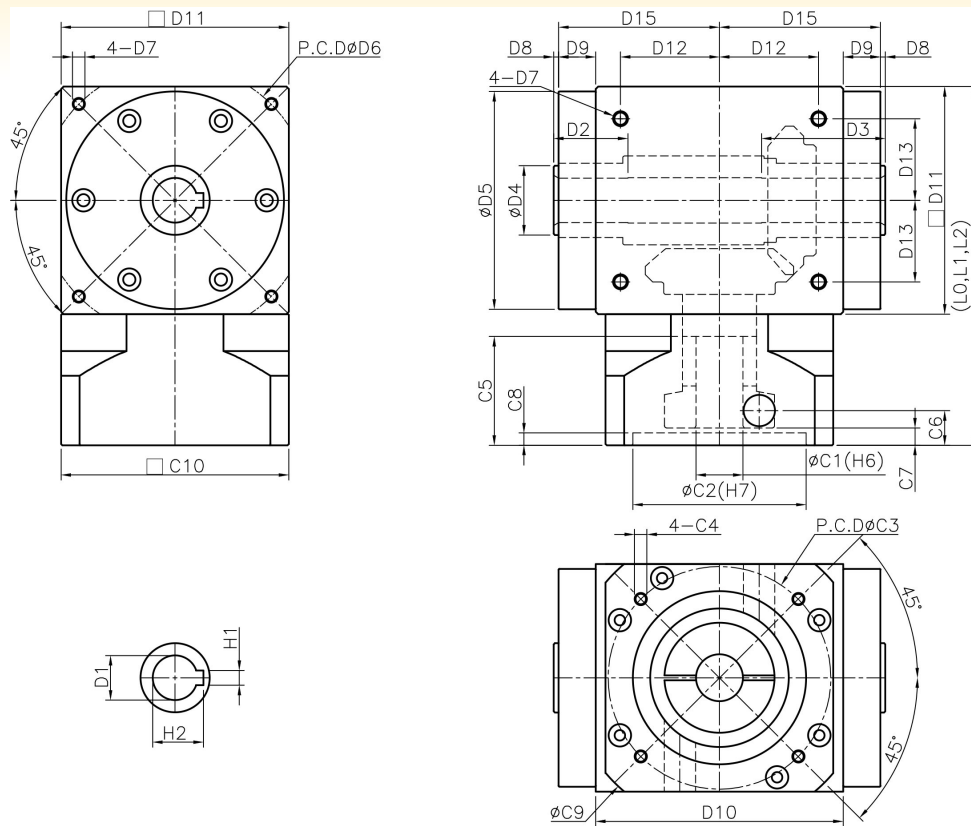
Radial Load Chart (KHT)



Load Factor Chart (KHT)



/ Drawing & Dimension



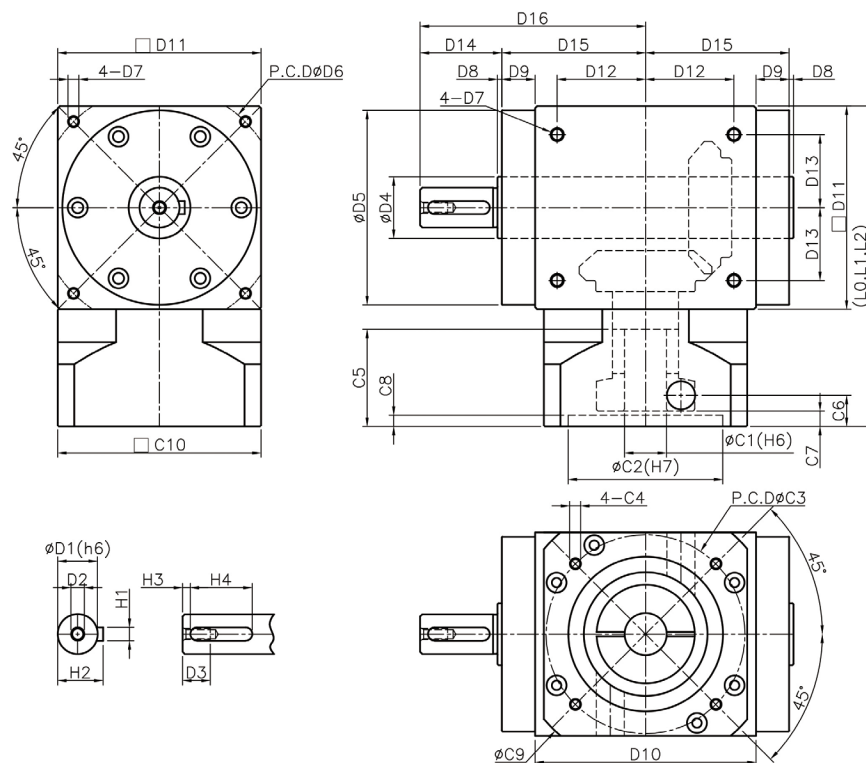
(Unit : mm)

Symbol & Size	KHT60-H	KHT90-H	KHT120-H	
C	$\phi C1$	6-14	14-19	16-24
	$\phi C2$	50	70	110
	$\phi C3$	70	90	145
	C4	M5x0.8P	M6x1.0P	M8x1.25P
	C5	33	39	65
	C6	13	15	28.5
	C7	7	7	20
	C8	4	5	7
	$\phi C9$	80	120	161.4
	C10	60	92	122
D	$\phi D1$	13	18	22
	D2	30	30	35
	D3	30	50	55
	$\phi D4$	20	28	35
	$\phi D5$	62	88	108
	$\phi D6$	76	110	145
	D7	M4x0.7P	M6x1.0P	M8x1.25P
	D8	2	2	2
	D9	13	15	15
	D10	70	100	126
	D11	62	92	120
	D12	25	40	50
	D13	25	33	42
	D14			
	D15	48	65	78
	D16			
H	H1	5	6	6
	H2	15.3	20.8	24.8
	H3			
	H4			
L	L0	101.5	141	198
	L1	130	185.5	254
	L2	146	213	287.2

C1-C10 are standard metric motor connect flange dimensions, size may change by motor

High Precision Planetary Gearbox Reducer

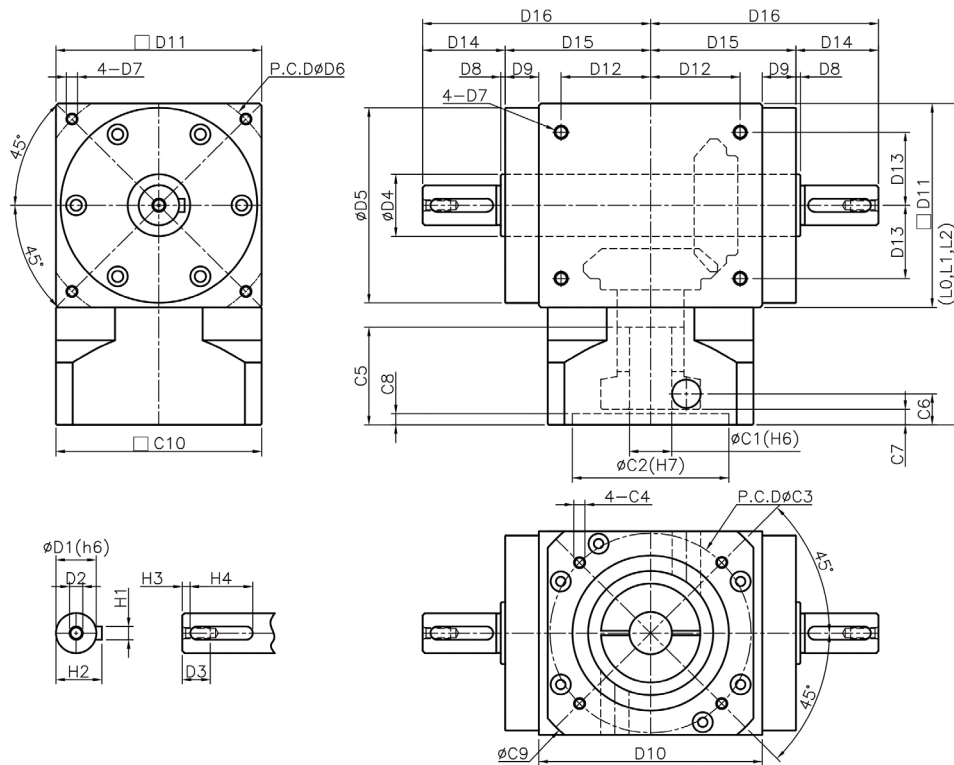
/ Drawing & Dimension



(Unit : mm)

Symbol & Size	KHT60-S1	KHT90-S1	KHT120-S1	
C	ØC1	6-14	14-19	16-24
	ØC2	50	70	110
	ØC3	70	90	145
	C4	M5x0.8P	M6x1.0P	M8x1.25P
	C5	33	39	65
	C6	13	15	28.5
	C7	7	7	20
	C8	4	5	7
	ØC9	80	120	161.4
D	C10	60	92	122
	ØD1	13	18	22
	D2	M4x0.7P	M5x0.8P	M8x1.25P
	D3	12	14.5	22
	ØD4	20	28	35
	ØD5	62	88	108
	ØD6	76	110	145
	D7	M4x0.7P	M6x1.0P	M8x1.25P
	D8	2	2	2
	D9	13	15	15
	D10	70	100	126
	D11	62	92	120
H	D12	25	40	50
	D13	25	33	42
	D14	22	37	42
	D15	48	65	78
L	D16	70	102	120
	H1	5	6	6
	H2	15	20.5	24.5
	H3	2	3.5	5
L	H4	16	25	25
	L0	101.5	141	198
	L1	130	185.5	254
	L2	146	213	287.2

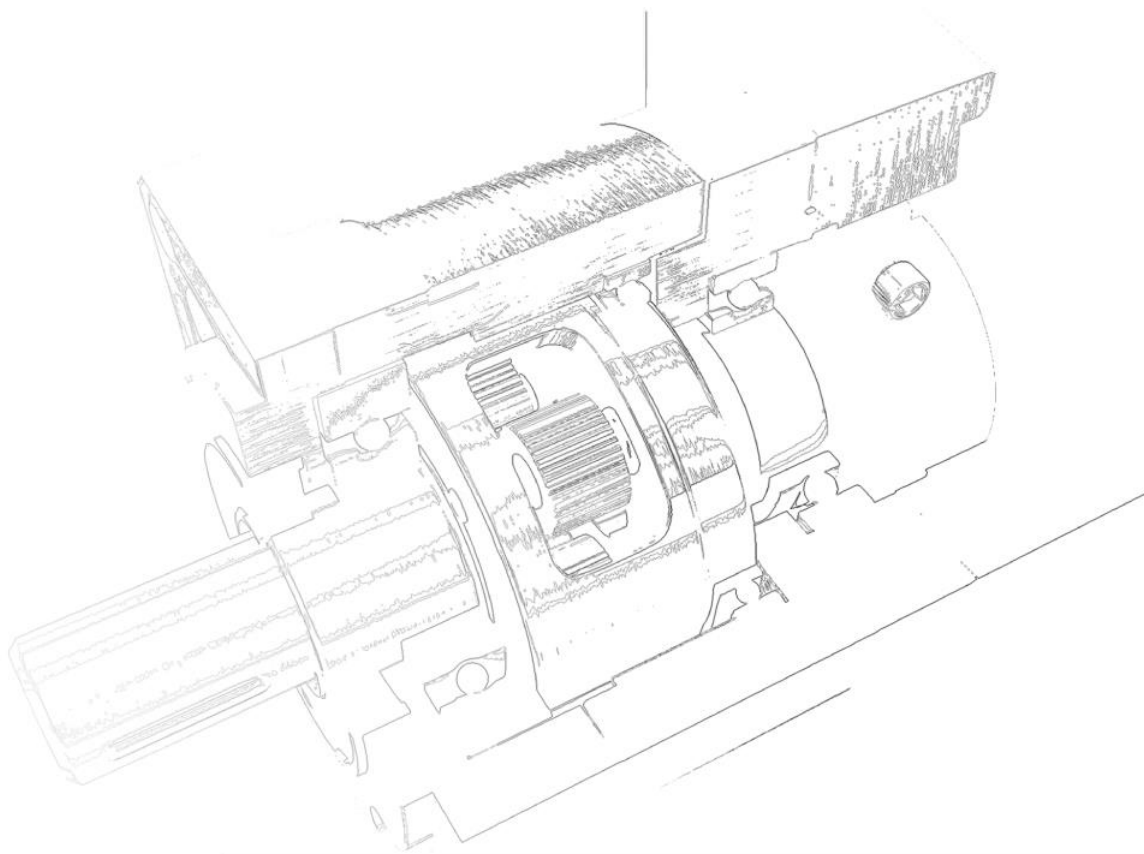
C1-C10 are standard metric motor connect flange dimensions, size may change by motor



(Unit : mm)

Symbol & Size	KHT60-S2	KHT90-S2	KHT120-S2	
C	ØC1	6-14	14-19	
	ØC2	50	70	
	ØC3	70	90	
	C4	M5x0.8P	M6x1.0P	M8x1.25P
	C5	33	39	65
	C6	13	15	28.5
	C7	7	7	20
	C8	4	5	7
	ØC9	80	120	161.4
	C10	60	92	122
D	ØD1	13	18	22
	D2	M4x0.7P	M5x0.8P	M8x1.25P
	D3	12	14.5	22
	ØD4	20	28	35
	ØD5	62	88	108
	ØD6	76	110	145
	D7	M4x0.7P	M6x1.0P	M8x1.25P
	D8	2	2	2
	D9	13	15	15
	D10	70	100	126
	D11	62	92	120
	D12	25	40	50
	D13	25	33	42
	D14	22	37	42
	D15	48	65	78
	D16	70	102	120
H	H1	5	6	6
	H2	15	20.5	24.5
	H3	2	3.5	5
	H4	16	25	25
L	L0	101.5	141	198
	L1	130	185.5	254
	L2	146	213	287.2

C1-C10 are standard metric motor connect flange dimensions, size may change by motor



KOJIN PRECISION INDUSTRIAL CO., LTD.

<http://www.kojin-precision.com>



KOJIN PRECISION INDUSTRIAL CO., LTD

No.39, Taichung 23 rd St., Taiping Dist., Taichung City 41144, Taiwan (R.O.C)
Tel:+886-4-2279-8586 Fax:+886-4-2279-8453
E-mail: sales@kojin-precision.com
Website: www.kojin-precision.com

