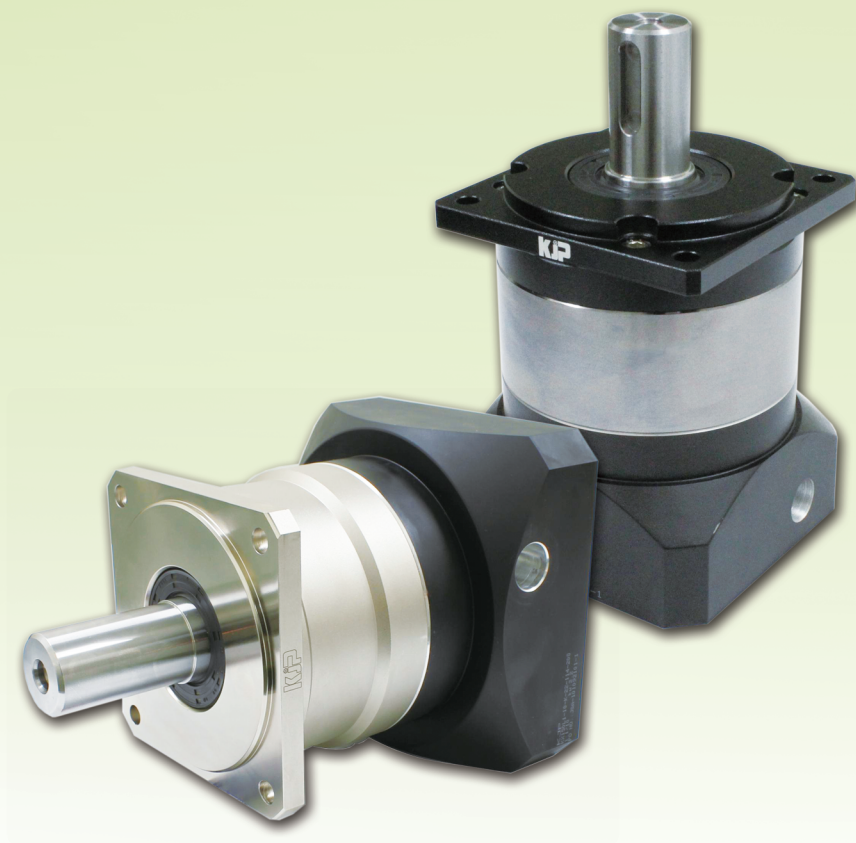


KX Series

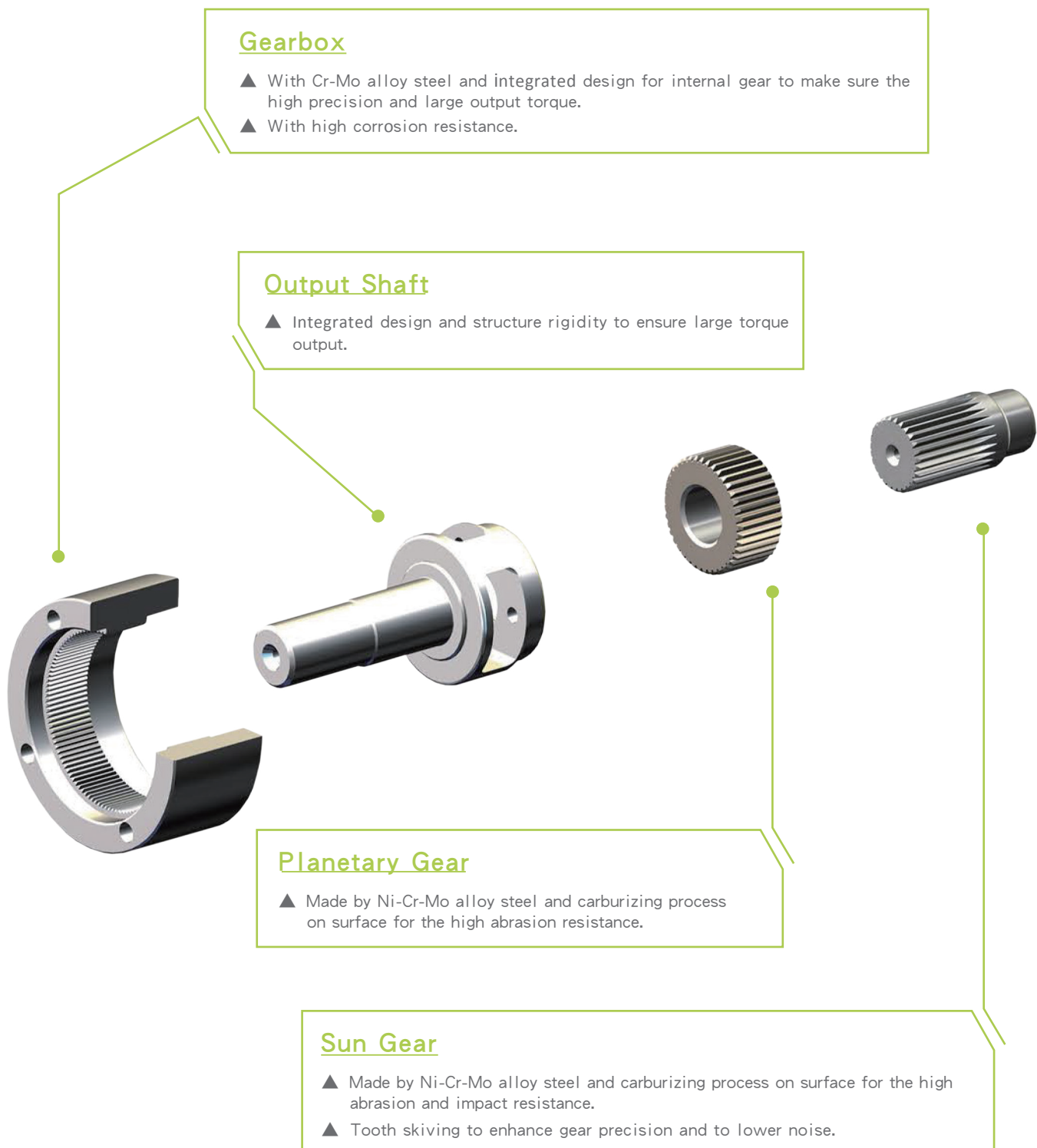
Cost-Effective High Precision
Planetary Gearboxes.



High Precision Planetary Gearbox Reducer / Application & Components Features

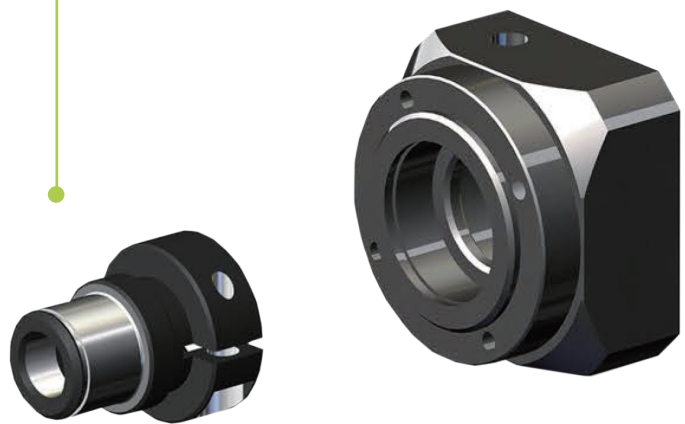
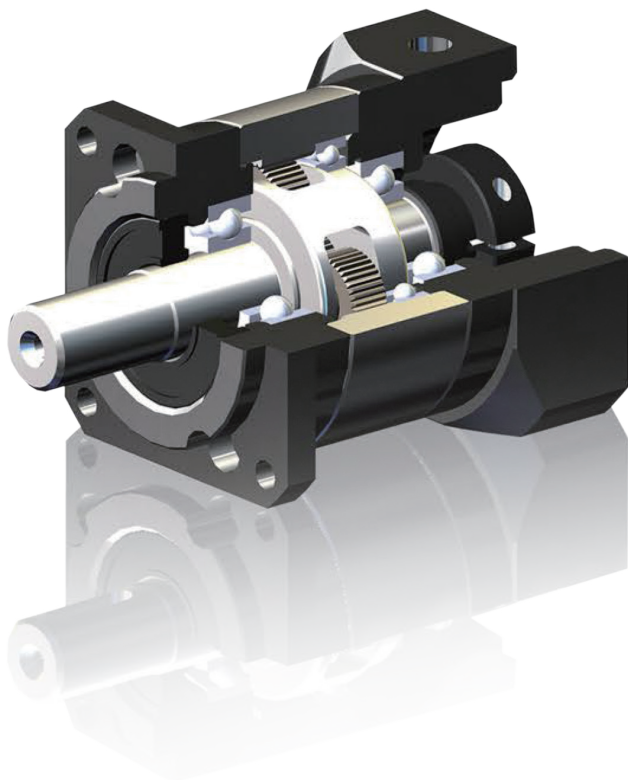
Application

KX serial products can be applied to the automated equipment which is in precision transmission or continuously transmission. Such as conveyer equipment, pipe bender, spring machine industry, LCD equipment... and so on.



Input Shaft

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



Connecting Flange

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

High Precision Planetary Gearbox Reducer

/ Selection Reference Table

KX Selection Reference Table

Motor Output Power	Model	Ratio																
		1/3	1/4	1/5	1/6	1/7	1/8	1/10	1/15	1/20	1/25	1/30	1/35	1/40	1/50	1/60	1/70	1/100
50W	KX40	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
100W	KX40	●	●	●	●	●	●	●	●	●	●	●						
	KX60	●	●	●		●		●	●	●	●	●	●	●	●		●	●
200W	KX60	●	●	●		●		●	●	●	●	●	●	●	●			
	KX90	●	●	●		●		●	●	●	●	●	●	●	●		●	●
400W	KX60	●	●	●		●		●	●	●	●	●	●					
	KX90	●	●	●		●		●	●	●	●	●	●	●	●		●	
500W	KX90	●	●	●		●		●	●	●	●	●	●	●				
	KX120	●	●	●		●		●	●	●	●	●	●	●	●		●	●
750W	KX90	●	●	●		●		●	●	●	●							
	KX120	●	●	●		●		●	●	●	●	●	●	●	●			
1.0KW	KX120	●	●	●		●		●	●	●	●	●	●	●	●			
	KX150	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●
1.5KW	KX120	●	●	●		●		●	●	●	●	●	●					
	KX150	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●
2.0KW	KX150	●	●	●	●	●		●	●	●	●	●	●	●	●			
	KX180	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●
3.5KW	KX150	●	●	●	●	●		●	●	●	●	●						
	KX180	●	●	●	●	●		●	●	●	●	●	●	●	●			
5.0KW	KX150	●	●	●	●	●		●	●	●								
	KX180	●	●	●	●	●		●	●	●	●	●	●	●				
7.0KW	KX180	●	●	●	●	●		●	●	●								
	KX220		●	●		●		●		●	●	●						
11.0KW	KX180	●	●	●	●	●		●										
	KX220		●	●		●		●		●								
12.0KW	KX220		●	●		●		●										
15.0KW	KX220		●	●		●		●										

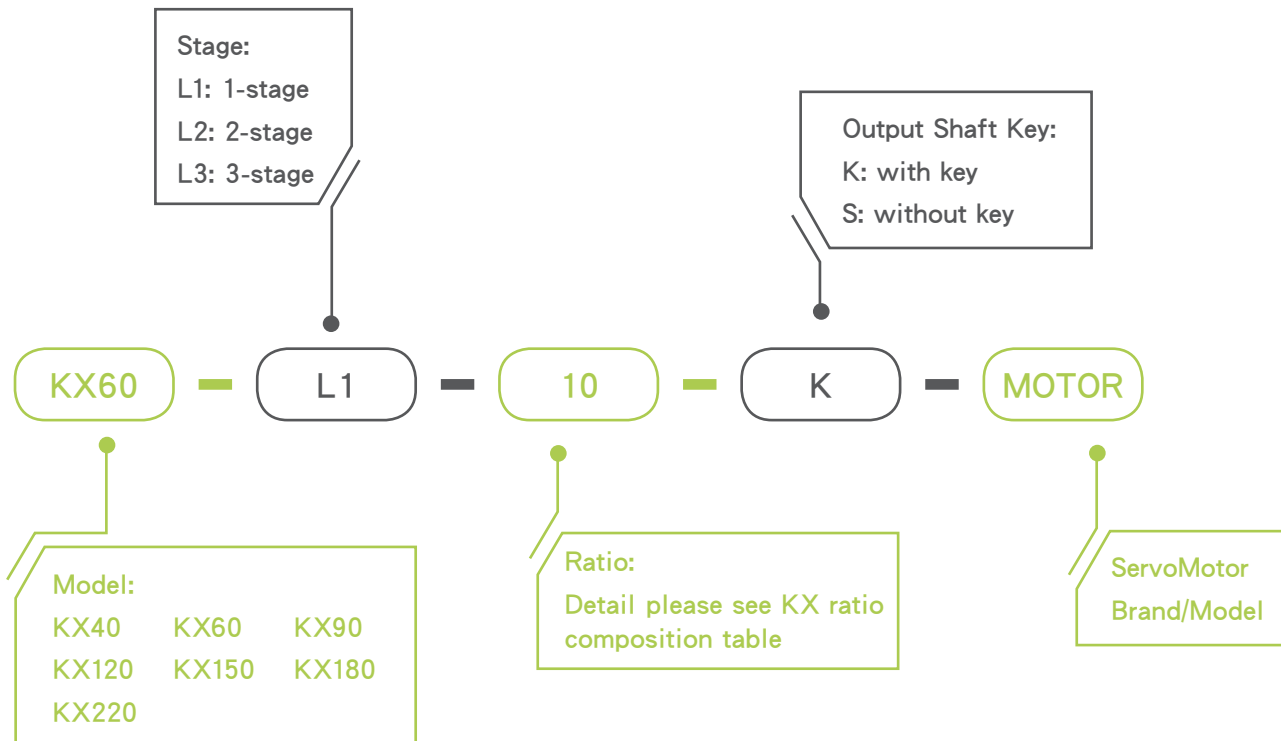
Note :

1. According to motor output power, selecting the suitable reducer models with '●' mark.
2. When applied to bigger torque or torsional rigidity mechanism, larger size of reducer must be used.
3. Please contact our engineers for ratios not being listed in above table.

← / Model Code



Reducer Model(KX)



KX

High Precision Planetary Gearbox Reducer

/ Selection Reference Table
/ Ratios Composition Table

KX Ratio Composition Table

Model	Ratios Table for Every Stage		
	Ratio of 1 Stage (L1)	Ratio of 2 Stages (L2)	Ratio of 3 Stages (L3)
KX40	3 , 4 , 5 , 6 , 7 , 8 , 10	15 , 20 , 25 , 30 , 35 , 40 , 50	
KX60	3 , 4 , 5 , 7 , 10	12 , 15 , 16 , 20 , 21 , 25 , 28 , 30 , 35 , 40 , 50 , 70 , 100	120 , 150 , 200 , 250 , 300 , 350 , 400 , 500 , 700 , 1000
KX90	3 , 4 , 5 , 7 , 10	12 , 15 , 16 , 20 , 21 , 25 , 28 , 30 , 35 , 40 , 50 , 70 , 100	120 , 150 , 200 , 250 , 300 , 350 , 400 , 500 , 700 , 1000
KX120	3 , 4 , 5 , 7 , 10	12 , 15 , 16 , 20 , 21 , 25 , 28 , 30 , 35 , 40 , 50 , 70 , 100	120 , 150 , 200 , 250 , 300 , 350 , 400 , 500 , 700 , 1000
KX150	3 , 4 , 5 , 6 , 7 , 10	12 , 15 , 16 , 20 , 21 , 25 , 28 , 30 , 35 , 40 , 50 , 60 , 70 , 100	120 , 150 , 200 , 250 , 300 , 350 , 400 , 500 , 700 , 1000
KX180	3 , 4 , 5 , 6 , 7 , 10	12 , 15 , 16 , 20 , 21 , 25 , 28 , 30 , 35 , 40 , 50 , 60 , 70 , 100	120 , 150 , 200 , 250 , 300 , 350 , 400 , 500 , 700 , 1000
KX220	4 , 5 , 7 , 10	16 , 20 , 25 , 28 , 35 , 40 , 50 , 70 , 100	

Ratio of One Stage (L1) = as listed in table (Ratio of stage 1)

Ratio of Two Stages (L2)= Ratio of Stage 1 x Ratio of Stage 2

Ratio of Three Stages (L3)= Ratio of Stage 1 x Ratio of Stage 2 x Ratio of Stage 3

Ex: (L1) 5:1= Gear Ratio is 5

Ex: (L2) 50:1= L1 Ratio 5 x L2 Gear Ratio 10= Ratio 50

Ex: (L3) 500:1= L1 Ratio 5 x L2 Gear Ratio 10 x L3 Gear Ratio 10 = Ratio 500

KX Reducer Moment of Inertia Table

		Stage	Ratio	KX40	KX60	KX90	KX120	KX150	KX180	KX220	
Moment of Inertia $J, \text{kg} \cdot \text{cm}^2$	L1		3	0.02	0.05	0.93	2.34	10.76	26.48	—	
			4	0.01	0.05	0.93	1.95	8.89	21.51	75.08	
			5	0.01	0.05	0.90	1.88	8.55	20.60	75.91	
			6	0.01	—	—	—	8.47	20.42	—	
			7	0.01	0.05	0.88	1.83	8.42	20.26	74.73	
			8	0.01	—	—	—	—	—	—	
			9	—	—	—	—	—	—	—	
			10	0.01	0.05	0.88	1.82	8.38	20.15	74.85	
		L2		15	0.01	0.05	0.89	1.86	8.51	20.50	—
				20	0.01	0.05	0.89	1.86	8.51	20.50	75.11
			25	0.01	0.05	0.89	1.86	8.51	20.50	75.11	
			30	0.01	0.05	0.89	1.83	8.51	20.50	—	
			35	0.01	0.05	0.88	1.82	8.40	20.50	80.46	
			40	0.01	0.05	0.88	1.82	8.37	20.13	75.95	
			45	—	—	—	—	—	—	—	
			50	0.01	0.05	0.88	1.82	8.37	20.13	75.11	
			60	—	—	—	—	8.37	20.42	—	
			70	—	0.05	0.88	1.82	8.37	20.13	74.68	
		80	—	—	—	—	—	—	—		
		90	—	—	—	—	—	—	—		
	100	—	0.05	0.88	1.82	8.37	20.13	74.68			

← / Technical Specification Table

KX Series Technical Specifications											
Specification	Unit	Stage	Ratio	KX40	KX60	KX90	KX120	KX150	KX180	KX220	
Reducer Nominal Output Torque T_{2N}	Nm	L1	3	16	50	125	235	500	1,000	—	
			4	17	35	136	225	580	1,090	1,530	
			5	17	42	152	256	660	1,215	1,900	
			6	16	—	—	—	610	1,060	—	
			7	15	46	136	235	540	1,135	1,620	
			8	13	—	—	—	—	—	—	
		L2	10	13	25	94	225	460	935	1,500	—
			15	13	35	125	210	500	1,000	—	—
			20	14	35	142	225	530	1,090	1,530	—
			25	13	42	158	256	660	1,215	1,900	—
			30	14	42	146	225	610	1,200	—	—
			35	13	42	136	235	540	1,135	1,620	—
			40	11	25	118	225	530	1,090	1,530	—
			45	—	—	—	—	—	—	—	—
			50	12	25	156	256	660	1,215	1,500	—
			60	—	—	—	—	610	1,060	—	—
			70	—	46	135	235	540	1,135	1,620	—
			80	—	—	—	—	—	—	—	—
			90	—	—	—	—	—	—	—	—
100	—	25	94	225	460	935	1,500	—			
Emergency Stop Torque	Nm	L1, L2	3-100 3 Times of Nominal Output Torque								
Nominal Input Speed n_{1N}	rpm	L1, L2	3-100	3,000	3,000	3,000	2,500	2,500	2,500	2,000	
Max. Input Speed n_{1B}	rpm	L1, L2	3-100	6,000	6,000	6,000	5,000	5,000	5,000	4,000	
Standard Backlash	arcmin	L1	3-10	≤10	≤10	≤8	≤8	≤6	≤6	≤6	
		L2	15-100	≤15	≤15	≤12	≤12	≤10	≤10	≤10	
Torsional Rigidity	Nm/arcmin	L1, L2	3-100	3	6	12	25	51	142	215	
Max. Radial Load F_{rB}	N	L1, L2	3-100	750	1,200	2,500	5,600	9,000	14,200	24,000	
Max. Axial Load F_{aB}	N	L1, L2	3-100	375	600	1,250	2,800	4,500	7,100	12,000	
Warranty	M	L1, L2	3-100 18 Months (Under Normal Usage)								
Average Operation Time	hr	L1, L2	3-100 20,000								
Efficiency of Full Loading η	%	L1	3-10 ≥98%								
		L2	15-100 ≥95%								
Net Weight	kg	L1	3-10	0.5	1.05	2.9	7.46	15.1	26	50.3	
		L2	15-100	0.69	1.34	3.75	9.44	18.9	34.33	66.1	
Operating Temp	°C	L1, L2	3-100 -10°C ~ +90°C								
Lubrication		L1, L2	3-100 Lithium Complex Synthetic Lubrication								
Mounting Position		L1, L2	3-100 All Directions								
Degree of Protection		L1, L2	3-100 IP65								
Running Noise	dBA	L1, L2	3-100	≤65	≤65	≤65	≤68	≤68	≤70	≤72	

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. Duty Cycle < 60%, Average Lifetime = List Value; Duty Cycle ≥ 60%, Average Lifetime < 50% List value
6. 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 :

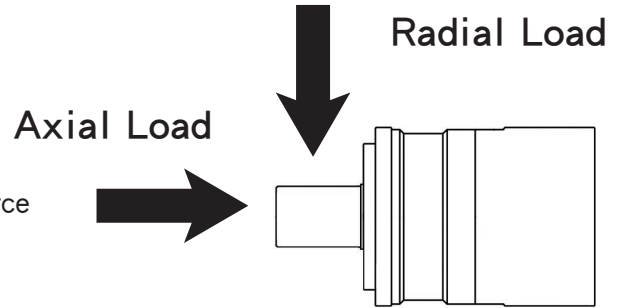
The force exerts perpendicular to output shaft

Permitted Axial Load :

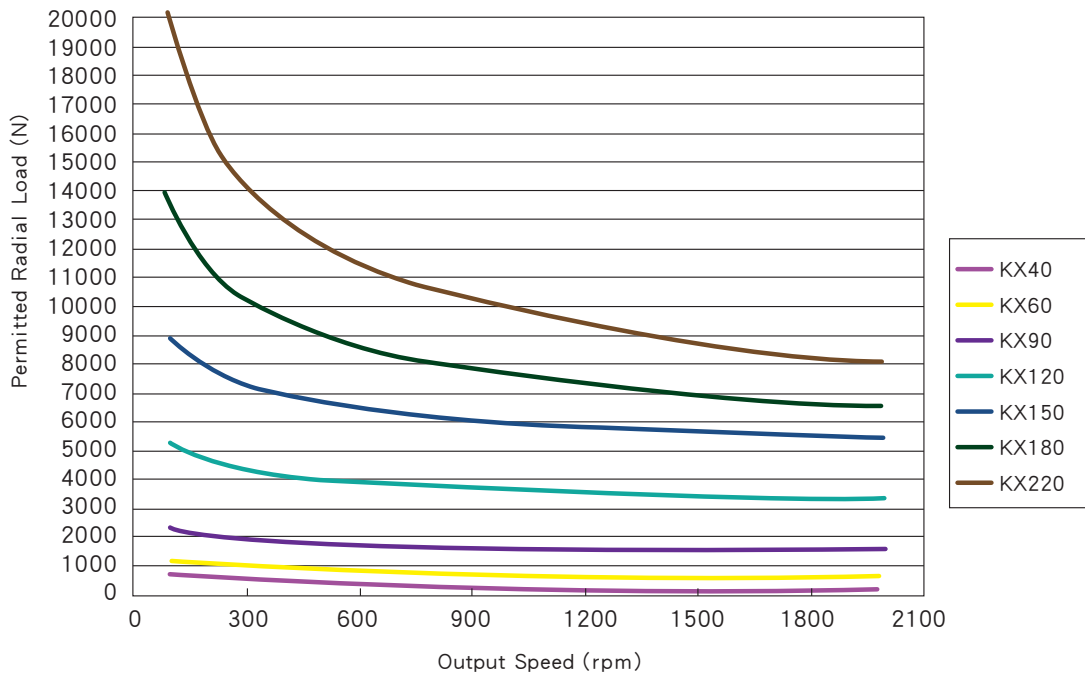
The force exerts parallel to output shaft

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

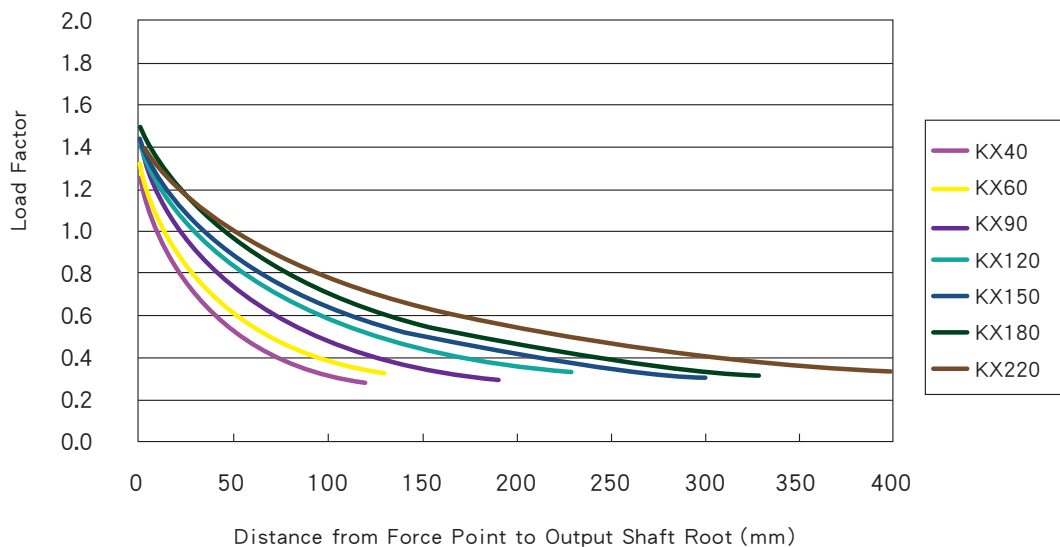
- a: if the output shaft run faster, the radial/axial loads become lower.
- b: if the force point get farther from the shaft root, the radial/axial loads get lower.



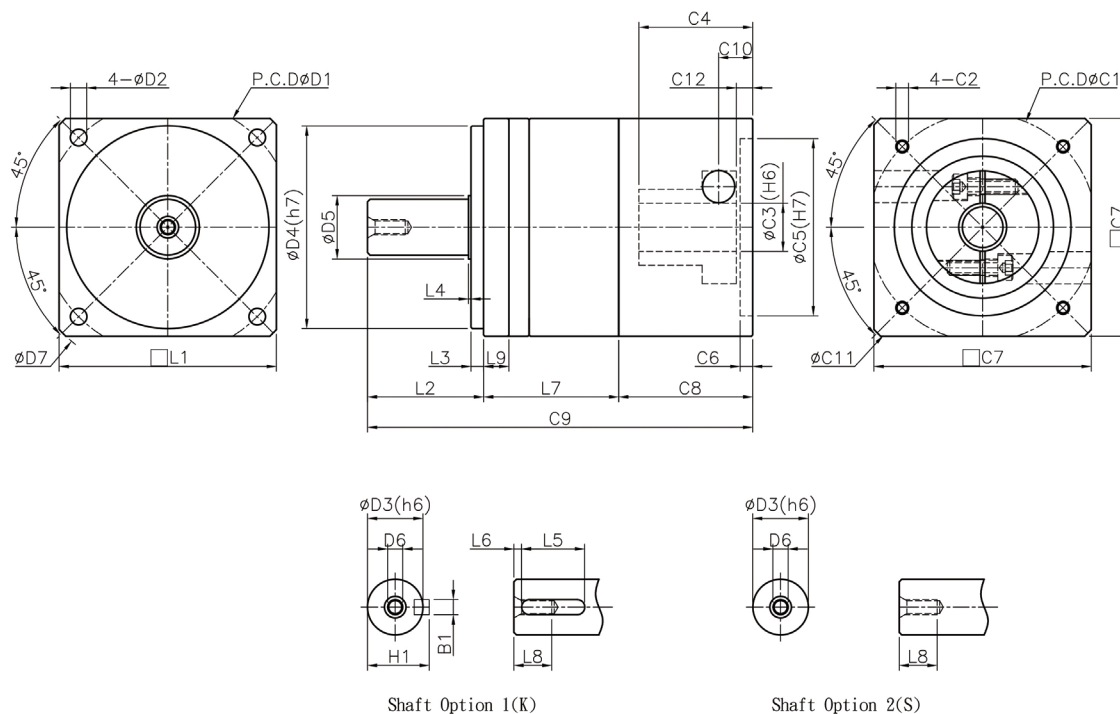
Radial Load Chart (KX)



Load Factor Chart (KX)



/ Drawing & Dimension



(Unit : mm)

Symbol & Size	KX40-L1	KX60-L1	KX90-L1	KX120-L1	KX150-L1	KX180-L1	KX220-L1	
D	D1	50	70	100	130	165	215	
	D2	3.5	5.5	6.5	8.8	11	13	
	D3	13	16	22	32	38 (40)	50 (55)	
	D4	35	50	80	110	130	160	
	D5	15	17	25	35	40 (45)	60	
	D6	M4×0.7P	M5×0.8P	M6×1.0P	M8×1.25P	M12×1.75P	M12×1.75P	M20×2.5P
	D7	60	80	118	160	190	245	292
L	L1	46	62	86	120	142	182	
	L2	26	33	46	69.5	75	95	
	L3	5.5	5	5	10	4	10	
	L4	1	1.5	1	0.5	3	2	
	L5	15	20	25	40	45	70	
	L6	2	3	3	3	5	6	
	L7	33	43	53.5	70.5	90	95.5	
	L8	8	12	15	20	32	42	
	L9	9.5	10	10	15	15	15	
C	C1	46	70	90	145	200	235	
	C2	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M12x1.75P	M12x1.75P	
	C3	5-8	6-14	14-19	16-24	19-42	19-42	
	C4	26	31	41	66	88	85	
	C5	30	50	70	110	114.3	114.3	
	C6	4	3.5	5	7	6	10	
	C7	46	62	86	122.0	176	182	
	C8	32.5	37	49.5	77	97.5	100	
	C9	91.5	113	149	217	262.5	290.5	
	C10	11	12	15	28.5	38.5	33.5	
	C11	60	80	118	161.4	230	230	
	C12	6	6	7	20	26.5	17	
B	B1	4	5	6	10	10 (12)	14 (16)	
H	H1	14.5	18	24.5	35	41 (43)	53.5 (59)	

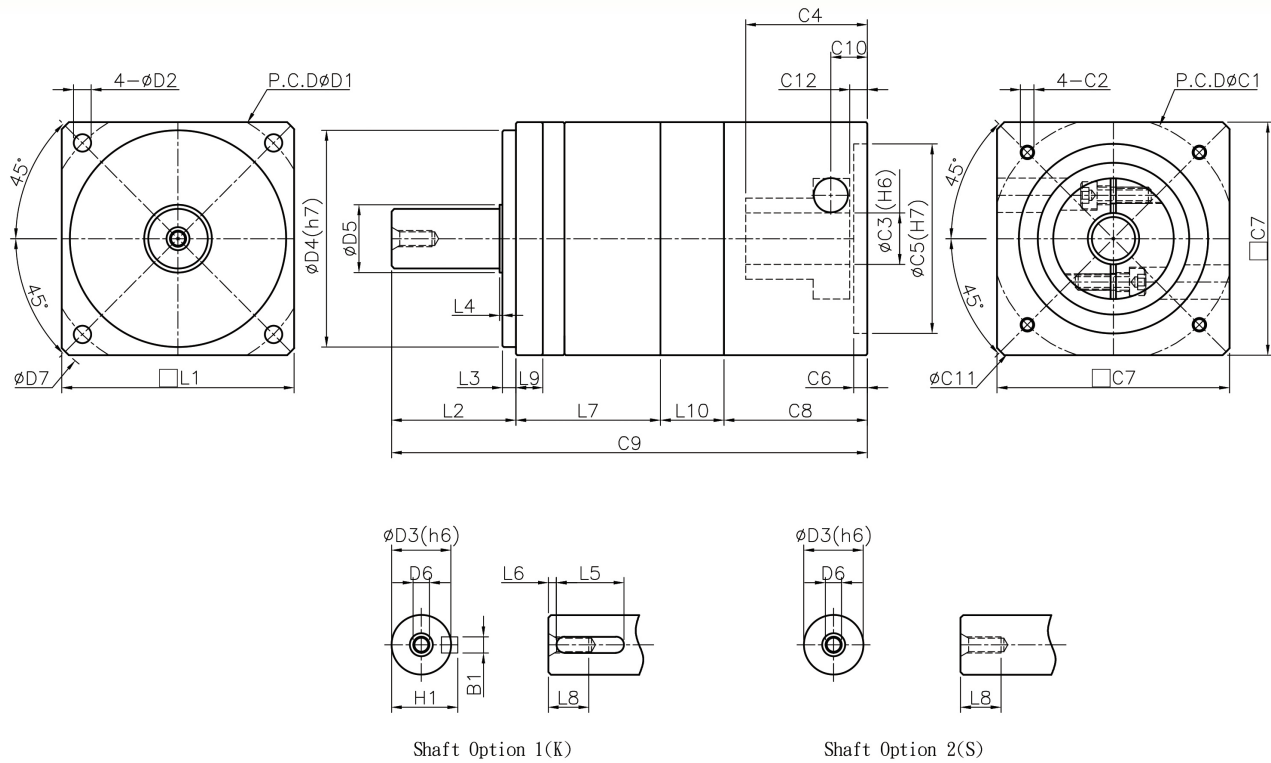
C1-C12 are standard metric motor connect flange dimensions, actual size may change by motor.

() Optional size for output shaft

KX

High Precision Planetary Gearbox Reducer

/ Drawing & Dimension

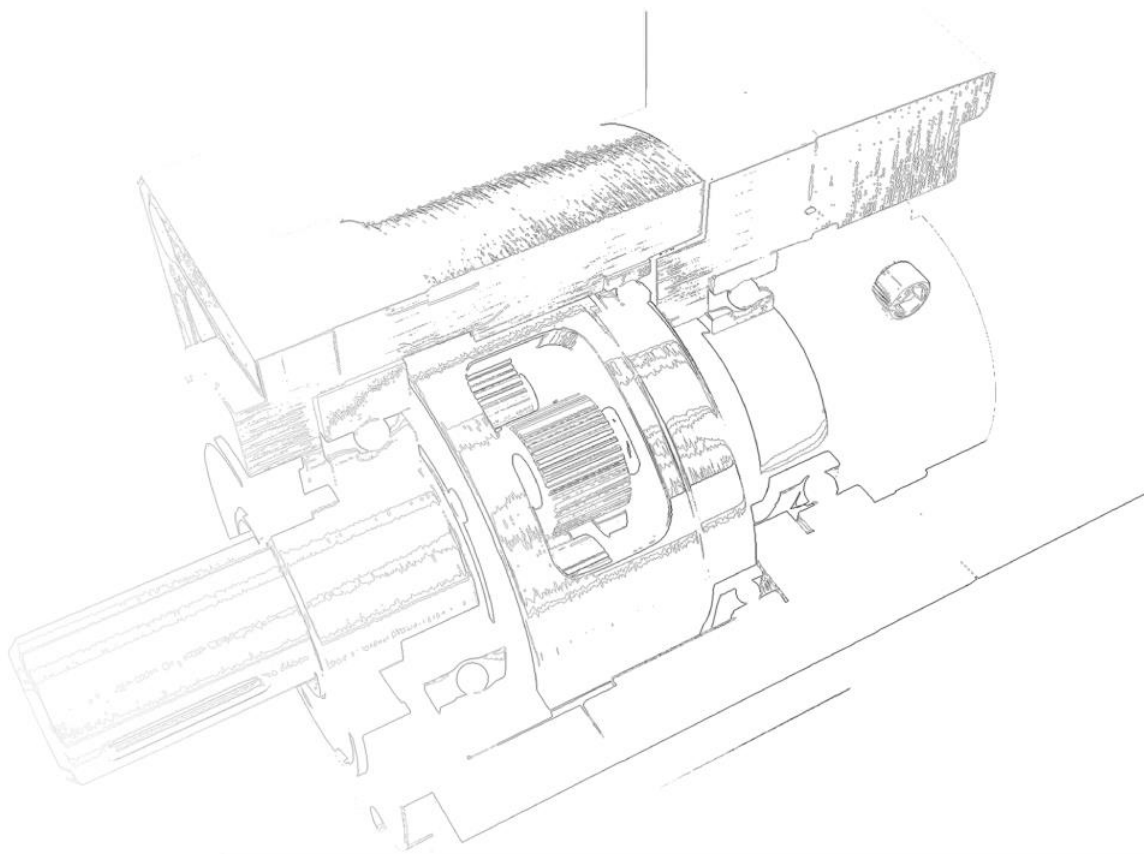


(Unit : mm)

Symbol & Size	KX40-L2	KX60-L2	KX90-L2	KX120-L2	KX150-L2	KX180-L2	KX220-L2	
D	D1	50	70	100	130	165	215	
	D2	3.5	5.5	6.5	8.8	11	13	
	D3	13	16	22	32	38 (40)	50 (55)	
	D4	35	50	80	110	130	160	
	D5	15	17	25	35	40 (45)	60	
	D6	M4×0.7P	M5×0.8P	M6×1.0P	M8×1.25P	M12×1.75P	M12×1.75P	M20×2.5P
	D7	60	80	118	160	190	245	
L	L1	46	62	86	120	142	182	
	L2	26	33	46	69.5	75	95	
	L3	5.5	5	5	10	4	10	
	L4	1	1.5	1	0.5	3	2	
	L5	15	20	25	40	45	70	
	L6	2	3	3	3	5	6	
	L7	33	43	53.5	70.5	90	95.5	
	L8	8	12	15	20	32	42	
	L9	9.5	10	10	15	15	15	
	L10	19	16	23.5	27.2	46	51.5	
C	C1	46	70	90	145	200	235	
	C2	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M12x1.75P	M12x1.75P	
	C3	5-8	6-14	14-19	16-24	19-42	19-42	
	C4	26	31	41	66	88	85	
	C5	30	50	70	110	114.3	114.3	
	C6	4	3.5	5	7	6	10	
	C7	46	62	86	122.0	176	182	
	C8	32.5	37	49.5	77	97.5	100	
	C9	110.5	129	172.5	244.2	308.5	342	
	C10	11	12	15	28.5	38.5	33.5	
	C11	60	80	118	161.4	230	230	
	C12	6	6	7	20	26.5	17	
B	B1	4	5	6	10	10 (12)	14 (16)	
H	H1	14.5	18	24.5	35	41 (43)	53.5 (59)	

C1-C12 are standard metric motor connect flange dimensions, actual size may change by motor.

() Optional size for output shaft



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