

SERVOBOX

Planetary Reducers

Characteristic of KSDD Series

저소음

헬리컬기어 사용으로 부드럽고 조용한 운전가능

Quiet operation

Helical gears contribute to reduce vibration and noise.

고정밀도

Backlash ≤ 3 arcmin, 정밀제어에 이상적

High precision

Backlash ≤ 3 arcmin reaches precision alignment.

고강성과 높은 토크

uncage needle bearing 사용, 강성과 토크를 높임

High rigidity & torque

High rigidity & high torque are achived by integrant needle roller bearings and one-piece constructed.

입력단 Shaft 타입

입력축이 Shaft Type이므로 다양한 연결방식에 용이함(커플링, 풀리)

Input Shaft Type

Various Transmissions Mode at the Input Shaft (Coupling, Pulley)



Indication of Model Numbers

KSDD	90	10	P1	MOTOR
Type	Model	Ratio	Backlash Class	Motor Type
KSDD	47	1-Stage 4, 5, 7, 10	Ps P0 P1 P2	Motor Brand & Model No.
	64			
	90			
	110	2-Stage 20, 25, 35, 40, 50, 70, 100		
	140			
	200			
255				



Features of KSDD Series

KSDD Series 제품 특성



One-piece Helical Gearbox Housing

감속기 케이스에 내치기어를 일체형으로 정밀 가공하였고, 기어 맞물림이 스퍼기어의 2배이상인 Helical gear 적용으로 동작 소음을 최소화하여 고출력 저소음, 저백래쉬를 실현하였습니다.

The gearbox and internal gear are one-piece constructed. High gear accuracy meets DIN6 class.



Full Needle Roller Bearings Design

감속기의 유성기어는 구조적 강도와 출력 향상을 위하여 Full needle bearing을 적용 하였습니다.

The planetary gear transmission employs full needle roller bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.



Integrated Planetary Arm Bracket

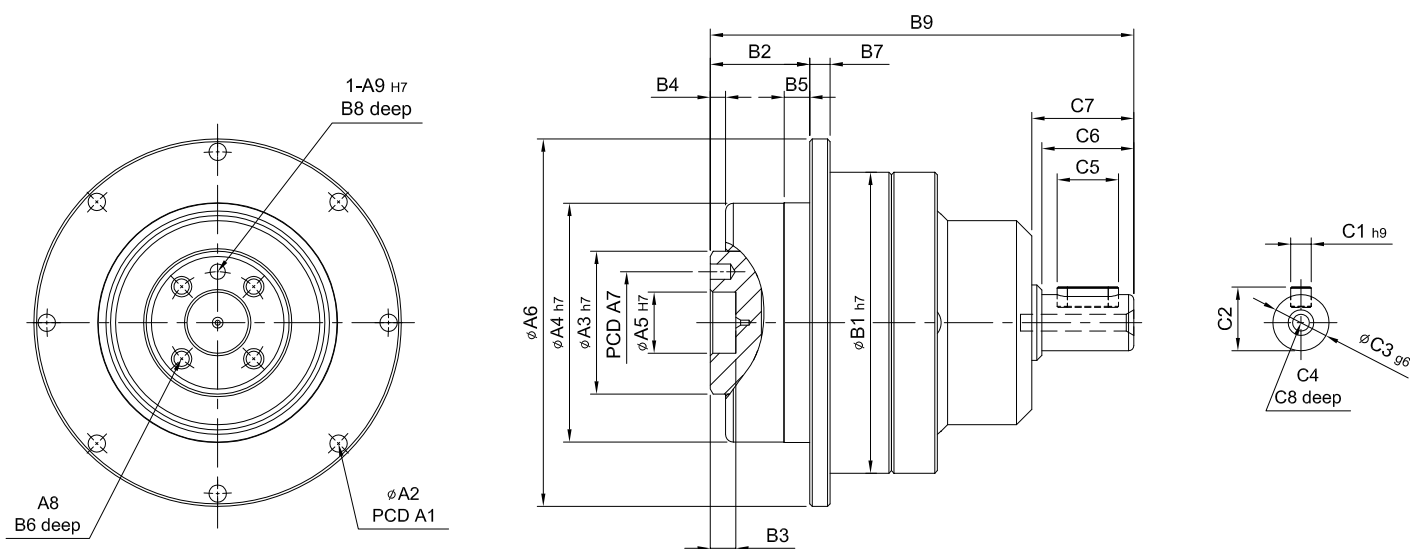
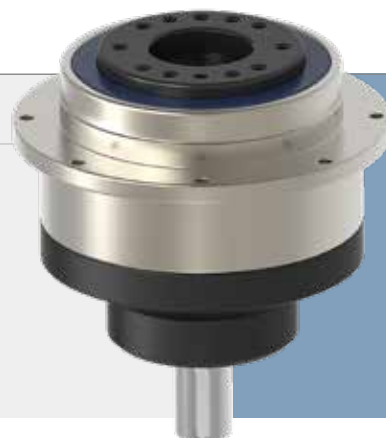
Planetary arm bracket과 출력 Shaft는 일체형 구조로 정밀 가공되어 비틀림 강도와 정밀도를 향상 시켰습니다.

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy. The entire structure is one-time machined for controlling accuracy in the specified tolerance.

MODEL : KSDD

1-Stage

RATIO : 4, 5, 7, 10



unit: mm

		47	64	90	110	140	200	255
A	A1	67	79	109	135	168	233	280
	A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9	16-13.5
	A3	28	40	63	80	100	160	180
	A4	47	64	90	110	140	200	255
	A5	12	20	31.5	40	50	80	100
	A6	72	86	118	146	179	248	300
	A7	20	31.5	50	63	80	125	140
	A8	4 - M3 x P0.5	7 - M5 x P0.8	7 - M6 x P1.0	11 - M6 x P1.0	11 - M8 x P1.25	11 - M10 x P1.5	12 - M16 x 2.0
	A9	3	5	6	6	8	10	12
B	B1	59	70	98	125	156	212	255
	B2	19.5	19.5	30	29	38	50	66
	B3	5	7	12	12	12	16	20
	B4	1.5	4	6	6	6	8	12
	B5	5	6	10	10	15	15	20
	B6	6.5	8	12	12	16	22	32
	B7	4	5	7	8	10	12	18
	B8	4	6	6	7	7	10	10
	B9	83	99	134	160	195	252	322.5
C	C1	4	5	5	6	10	12	16
	C2	12.5	16	18	24.5	35	43	59
	C3	11	14	16	22	32	40	55
	C4	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M12 x P1.75	M14 x P2.0	M16 x P2.0
	C5	12	20	20	30	40	50	75
	C6	18	24	28	36	50	60	85
	C7	20	26.3	31.5	40	54	65	90
	C8	8	10	12	16	24	28	32



High Precision Planetary Reducer

Model No.		Unit	Ratio	47	64	90	110	140	200	255
Rated Output Torque (Nominal output torque)	T _{2N}	Nm	4	22	60	160	335	650	1,200	2,020
			5	20	50	155	333	618	1,189	2,010
			7	19	47	142	309	573	1,108	1,870
			10	16	43	136	294	549	1,059	1,779
Max. Acceleration Torque	T _{2B}	Nm	4 ~ 10	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	4 ~ 10	3 Times of Rated Output Torque						
Rated Input Speed	n _{1N}	rpm	4 ~ 10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	n _{1B}	rpm	4 ~ 10	6,000	6,000	6,000	6,000	5,000	4,000	3,000
Backlash P _s		arcmin	4 ~ 10	-	-	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Backlash P ₀		arcmin	4 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Backlash P ₁		arcmin	4 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P ₂		arcmin	4 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Torsional Rigidity		Nm/arcmin	4 ~ 10	6	14	30	86	155	450	1,126
Max. Radial Force Ball Bearing	F _{2rB}	N	4 ~ 10	2,040	2,520	8,460	12,720	14,070	35,200	39,600
Max. Axial Force Ball Bearing	F _{2aB}	N	4 ~ 10	1,020	1,260	4,230	6,360	7,035	17,600	19,800
Max. Radial Force Taper Bearing	F _{2rB}	N	4 ~ 10	-	-	14,660	23,000	37,200	73,600	107,200
Max. Axial Force Taper Bearing	F _{2aB}	N	4 ~ 10	-	-	7,330	11,500	18,600	36,800	53,600
Max. Tilting Moment Ball Bearing ※	M _{2K}	Nm	4 ~ 10	31	98	185	320	940	2,200	4,300
Max. Tilting Moment Taper Bearing ※	M _{2K}	Nm	4 ~ 10	-	-	280	480	1,400	3,300	6,480
Service Life	L _H	hr	4 ~ 10	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	η	%	4 ~ 10	≥ 97%						
Operating Temperature		°C	4 ~ 10	- 25° C ~ + 90° C						
Lubrication			4 ~ 10	Synthetic Grease						
Protection Class			4 ~ 10	IP65						
Mounting Position			4 ~ 10	Any						
Noise Level		dB	4 ~ 10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight ± 3%		Kg	4 ~ 10	0.71	1.3	3.6	6.2	12	32	53

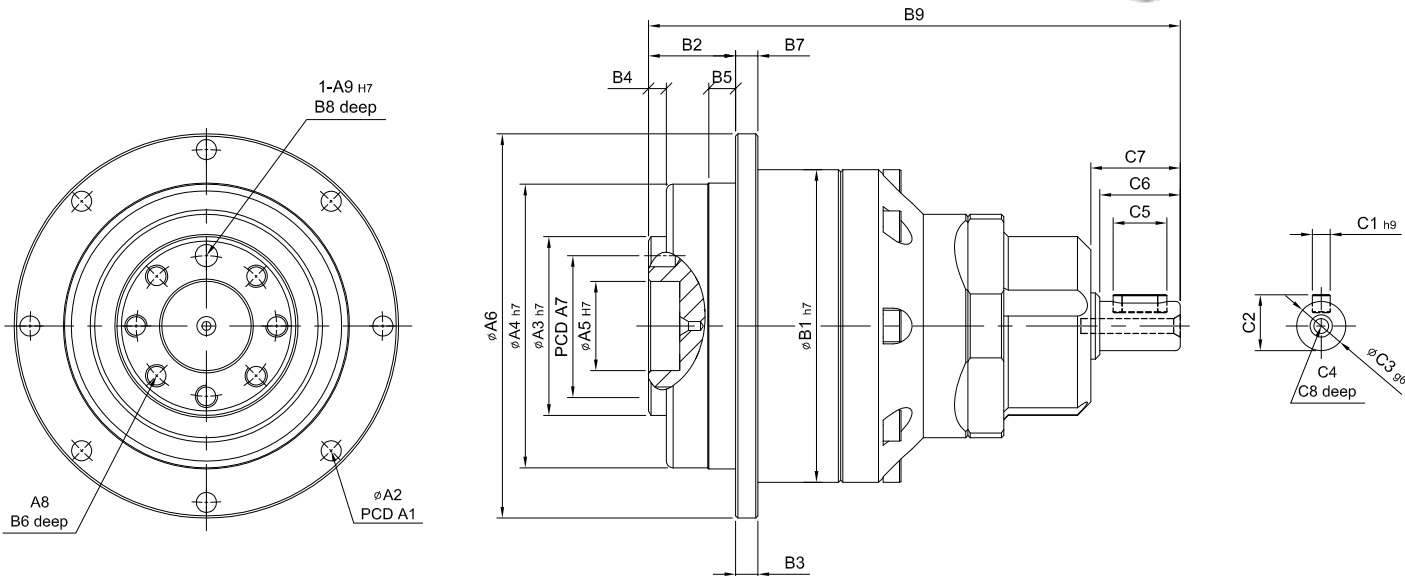
※ Applied to the output shaft center at 100 rpm.

■ Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
4	0.03	0.13	0.47	2.75	7.46	24.00	55
5	0.03	0.12	0.45	2.70	7.41	23.23	53.19
7	0.03	0.12	0.45	2.64	7.12	22.11	50.78
10	0.03	0.12	0.43	2.56	7.01	22.21	50.50

MODEL : KSDD

2-Stage
RATIO : 20, 25, 35, 40, 50, 70, 100



unit: mm

	Model Code	47	64	90	110	140	200	255
A	A1	67	79	109	135	168	233	280
	A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9	16-13.5
	A3	28	40	63	80	100	160	180
	A4	47	64	90	110	140	200	255
	A5	12	20	31.5	40	50	80	100
	A6	72	86	118	146	179	248	300
	A7	20	31.5	50	63	80	125	140
	A8	4 - M3 x P0.5	7 - M5 x P0.8	7 - M6 x P1.0	11 - M6 x P1.0	11 - M8 x P1.25	11 - M10 x P1.5	12 - M16 x P2.0
	A9	3	5	6	6	8	10	12
B	B1	59	70	98	125	156	212	255
	B2	19.5	19.5	30	29	38	50	66
	B3	5	7	12	12	12	16	20
	B4	1.5	4	6	6	6	8	12
	B5	5	6	10	10	15	15	20
	B6	6.5	8	12	12	16	22	32
	B7	4	5	7	8	10	12	18
	B8	4	6	6	7	7	10	10
	B9	109	119	159	190	231.5	299	350.5
C	C1	4	4	5	5	6	10	12
	C2	12.5	12.5	16	18	24.5	35	43
	C3	11	11	14	16	22	32	40
	C4	M4 x P0.7	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M12 x P1.75	M14 x P2.0
	C5	12	12	20	20	30	40	50
	C6	18	18	24	28	36	50	60
	C7	20	20	26	31.5	40	54	65
	C8	8	8	10	12	16	24	28



High Precision Planetary Reducer

Model No.		Unit	Ratio	47	64	90	110	140	200	255
Rated Output Torque (Nominal output torque)	T	Nm	20	22	60	160	335	650	1,200	2,020
			25	20	50	155	333	618	1,189	2,010
			35	19	47	142	309	573	1,108	1,870
			40	22	60	160	335	650	1,200	2,020
			50	20	50	155	333	618	1,189	2,010
			70	19	47	142	309	573	1,108	1,870
			100	16	43	136	294	549	1,059	1,779
Max. Acceleration Torque	T	Nm	20 ~ 100	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	T	Nm	20 ~ 100	3 Times of Rated Output Torque						
Rated Input Speed	n	rpm	20 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	n	rpm	20 ~ 100	6,000	6,000	6,000	6,000	5,000	4,000	3,000
Backlash Ps		arcmin	20 ~ 100	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3
Backlash P0		arcmin	20 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P1		arcmin	20 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P2		arcmin	20 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Torsional Rigidity		Nm/arcmin	20 ~ 100	6	14	30	86	155	450	1,126
Max. Radial Force Ball Bearing	F	N	20 ~ 100	2,040	2,520	8,460	12,720	14,070	35,200	39,600
Max. Axial Force Ball Bearing	F	N	20 ~ 100	1,020	1,260	4,230	6,360	7,035	17,600	19,800
Max. Radial Force Taper Bearing	F	N	20 ~ 100	-	-	14,660	23,000	37,200	73,600	107,200
Max. Axial Force Taper Bearing	F	N	20 ~ 100	-	-	7,330	11,500	18,600	36,800	53,600
Max. Tilting Moment Ball Bearing ※	M	Nm	20 ~ 100	31	98	185	320	940	2,200	4,300
Max. Tilting Moment Taper Bearing ※	M	Nm	20 ~ 100	-	-	280	480	1,400	3,300	6,480
Service Life	L	hr	20 ~ 100	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	η	%	20 ~ 100	≥ 94%						
Operating Temperature		°C	20 ~ 100	- 25° C ~ + 90° C						
Lubrication			20 ~ 100	Synthetic Grease						
Protection Class			20 ~ 100	IP65						
Mounting Position			20 ~ 100	Any						
Noise Level		dB	20 ~ 100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight ± 3%		Kg	20 ~ 100	1.15	1.7	4.25	8.5	14.95	37.2	69

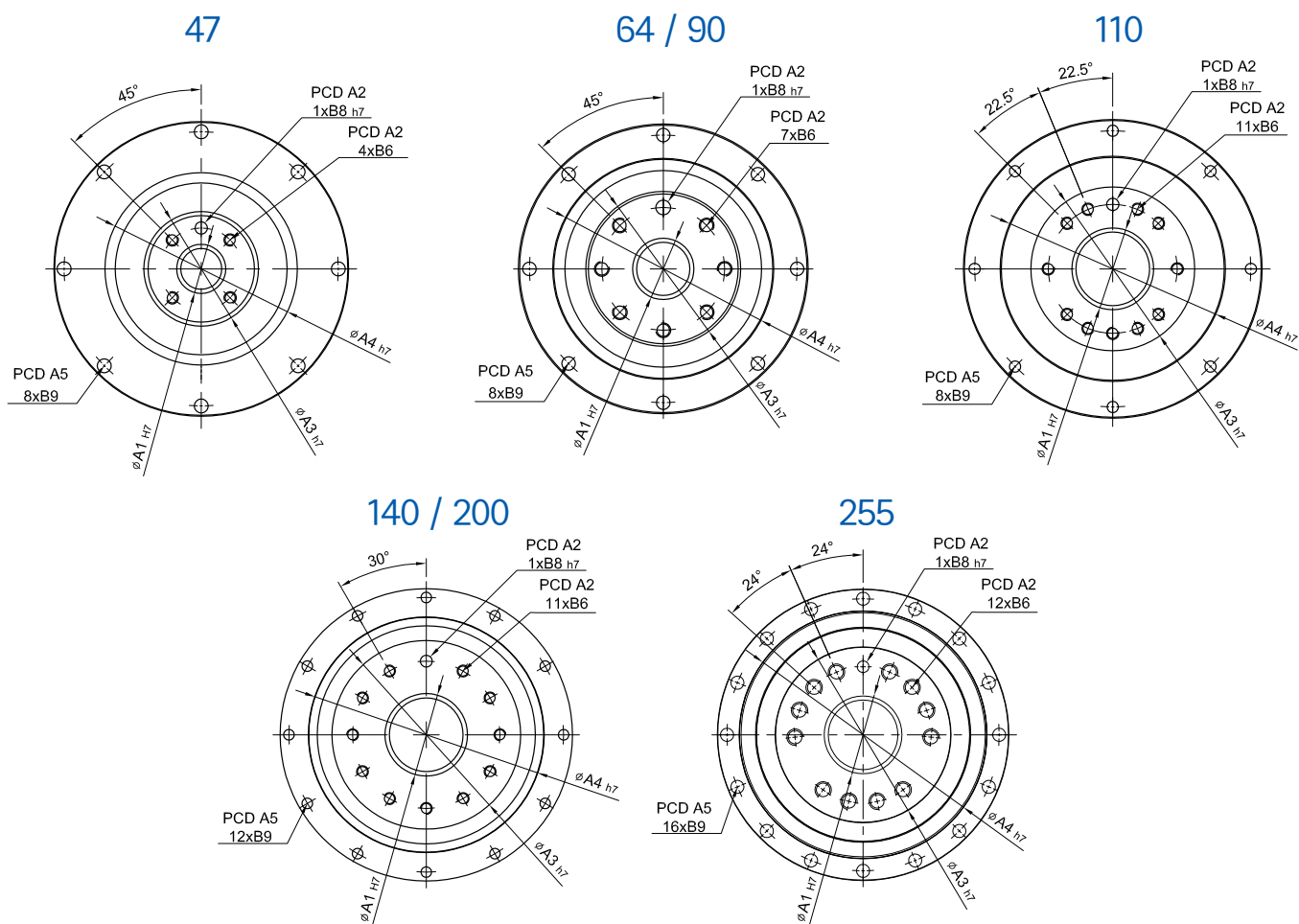
※ Applied to the output shaft center at 100 rpm.

■ Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
20	0.03	0.03	0.15	0.45	2.7	7.22	23.22
25	0.03	0.03	0.15	0.45	2.7	7.22	23.22
35	0.03	0.03	0.15	0.45	2.7	7.22	23.22
40	0.03	0.03	0.15	0.45	2.7	7.22	23.22
50	0.03	0.03	0.14	0.4	2.6	7.05	23.07
70	0.03	0.03	0.14	0.4	2.6	7.05	23.07
100	0.03	0.03	0.14	0.4	2.6	7.01	22.67



Output Frame Dimension of KSDD Series



1-Stage KSDD 2-Stage KSDD

unit: mm

	Model	47	64	90	110	140	200	255
	Code							
A	A1	12	20	31.5	40	50	80	100
	A2	20	31.5	50	63	80	125	140
	A3	28	40	63	80	100	160	180
	A4	47	64	90	110	140	200	255
	A5	67	79	109	135	168	233	280
B	B6	M3 x P0.5	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M16 x P2.0
	B8	3	5	6	6	8	10	12
	B9	3.4	4.5	5.5	5.5	6.6	9	13.5

