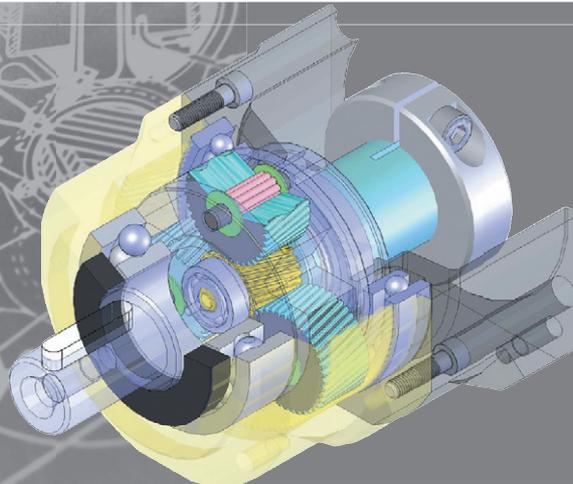


Quality First & Customer's Satisfaction

High Accuracy & Efficiency Profit

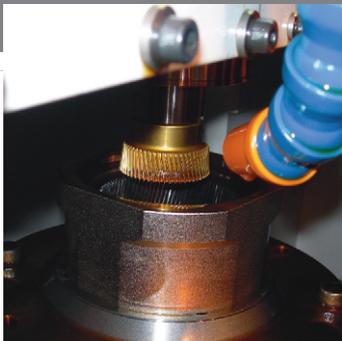
ATG is specialist in design, R&D and manufacturing of a wide range of high-tech gear motor and helical gear reducers, worm gear reducers, planetary gear reducers. In recent years, to meet customers' requirements of quality and price, we have been dedicated to constantly upgrade the performance of gear reducer, maximize efficiency, and provide the most comprehensive technical supports. Under the company's policy of "Quality First; Customer Satisfaction" and "Intelligence: Sincerity; Honesty", we have invited many highly experienced talents.

At ATG we have a team with outstanding background in high-tech field. ATG outstanding enterprise culture results from its practicality, constantly learning the advanced management system and a commitment to excellence.



Among the wide range of speed reducers, the planetary gear reducer features compact construction, high-torque resistance, high transmission efficiency, wide range of speed reduction and high accuracy.

The planetary gear reducers are widely applied in servo, stepping and DC transmission system. With its outstanding feature of high precision transmission, the planetary gear reducer is excellent for reducing speed, increasing torque and reducing torsional inertia ratio. High torque, low backlash and quiet running are three key features of ATG gear reducers, and these are the reasons why ATG gear reducers are in the leading position on the market.



Integrated

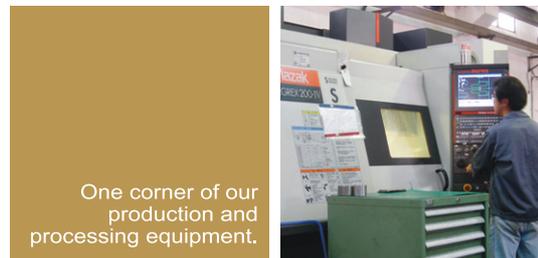
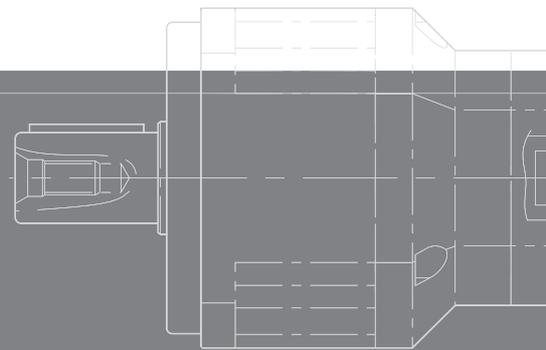
Manufacturing with
Full Range of
Automatic Equipment

Integration / Automation Machining equipment

Based on our acknowledgement of the unique processing characteristics of speed reducers on all parts, we have developed and designed a series of high-efficiency automatic machining equipment, to work with high-performance processing machines.

Our well-experienced technicians take good control of precision in our parts, and stringent quality control to ensure the best precision and performance of all parts and components.

A series of automatic processing equipment provides the most solid foundation for the consistency of precision in the machining of parts and components.



One corner of our
production and
processing equipment.

Automatic

processing equipment



Automatic processing equipment

To enhance technical improvement, ATG has placed a huge investment in the purchase of a whole set of the latest CNC computer processing machines and equipment, working precision parts, in combination with distinguished engineering personnel, to upgrade the precision of parts and ensure stable quality.



High Precision Planetary Reducer

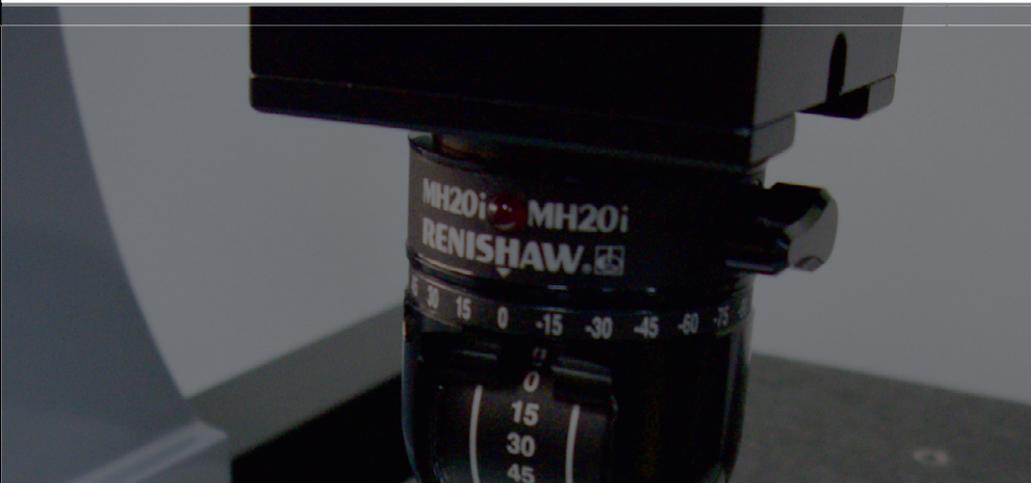
Comprehensive

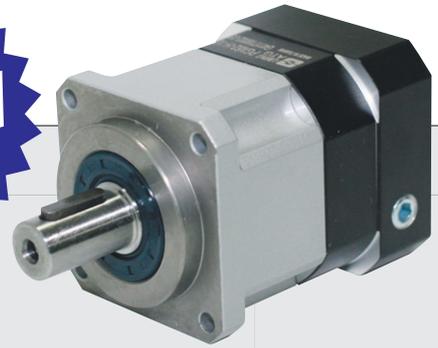
Quality Control System



Comprehensive quality control is not a mere slogan

[Comprehensive quality control] is never a mere slogan of ATG. We adhere to our quality policy. To each quality requirement, we have to set up rigorous quality standards for prompt and accurate quality control every single part is subjected to comprehensive inspection and tests, from initial receipt of material to assembly of finished products and regular operation, to completely satisfy your requirement. Our quality control department has the most advanced inspection equipment conducting precision measurement (A good tool is the master of all good works.) Our precision inspection instruments are the best assurance of our reliable quality.



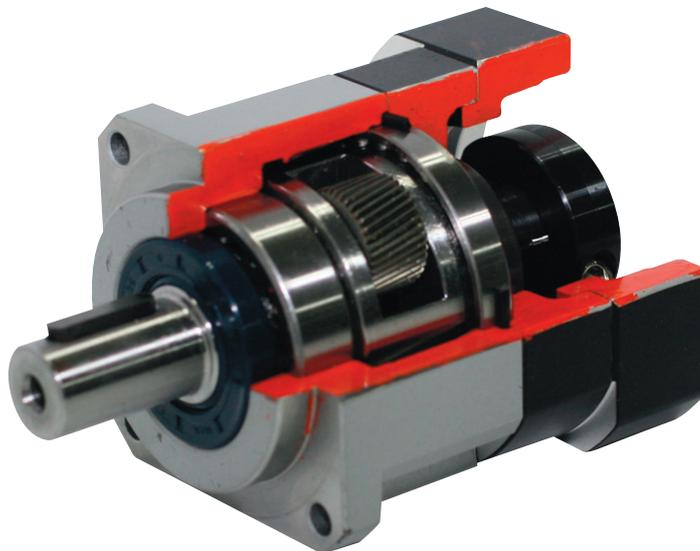


PGX – H Type (Standard Helical Gear Type)

Single Stage Backlash \leq 10 arc-min
 Double Stage Backlash \leq 12 arc-min

Indication of Model Numbers

PGX	90	H	10	Key Type
Type	Model	Helical Gear	Ratio	Output Shaft Keyway
PGX	44 62 90 120 142		Single Stage 3, 4, 5, 6, 7, 8, 9, 10 Double Stage 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100	<input type="checkbox"/> 무표기 Standard (Keyway) N : 표 기 Solid Output Shaft (No Keyway)



High Precision Planetary Reducer

PGX-H



Integrated Planetary Arm bracket

Planetary Arm bracket와 출력 Shaft는 일체형 구조입니다. 이는 비틀림 강성과 높은 정확도를 보장합니다.

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.



Collet chuck locking mechanism

감속기의 입력 부분과 Motor output shaft를 연결하기 위한 방식으로 역학상 확실한 체결력과 높은 속도에서 구동 할 때에도 백래쉬가 발생하지 않고 동력을 전달합니다.

The input end and the motor is couple through a collet chuck locking mechanism, It is dynamically balanced to assure concentricity and balance on the connection when running at high speed. No backlash for transmission.



Full Needle Bearing Design

Planetary 변속기어는 접촉면 증가를 위한 Retainer없는 Full Needle Bearing 구조입니다. 구조적 강도와 출력 회전력을 상승 시킨것입니다.

The Planetary gear transmission employs full needle bearings Without retainer to increase the contact surface, which greatly Upgrades structural rigidity and output torque.



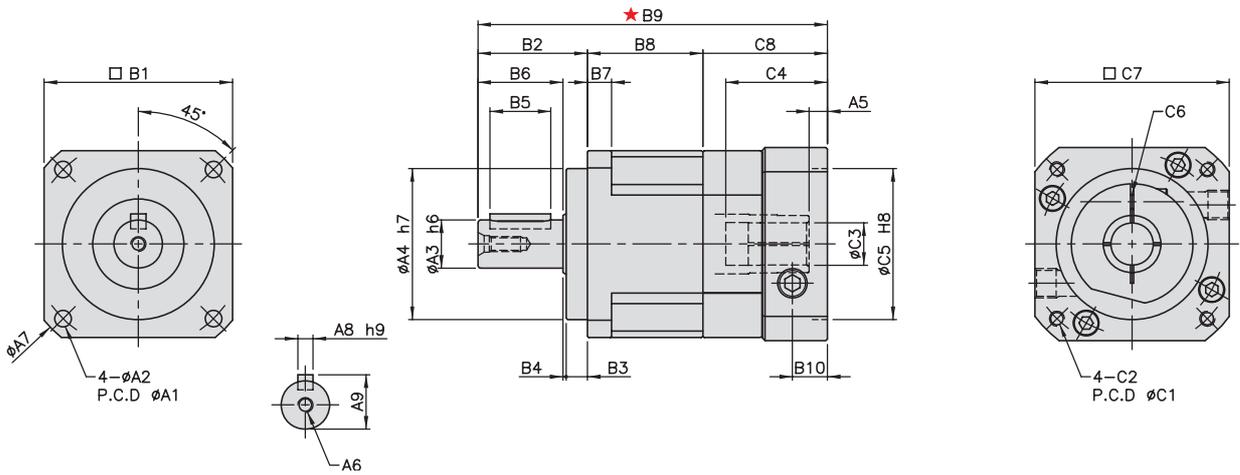
One-Piece Gear Box Body

기어박스과 내부 링은 하나의 구조로 이루어져 있습니다. 헬리컬 기어로 되어 있으며 기어의 교합율은 일반 스퍼기어의 2배 이상이며 원활한 운전과 낮은 소음으로 높은 회전출력과 낮은 백래쉬를 특징으로 합니다.

The gear box and internal ring are one-piece constructed, two times of teeth profile engagement percentage when comparing with common spur gears. In addition, it also features extremely smooth running low nose, high torque output and low backlash.

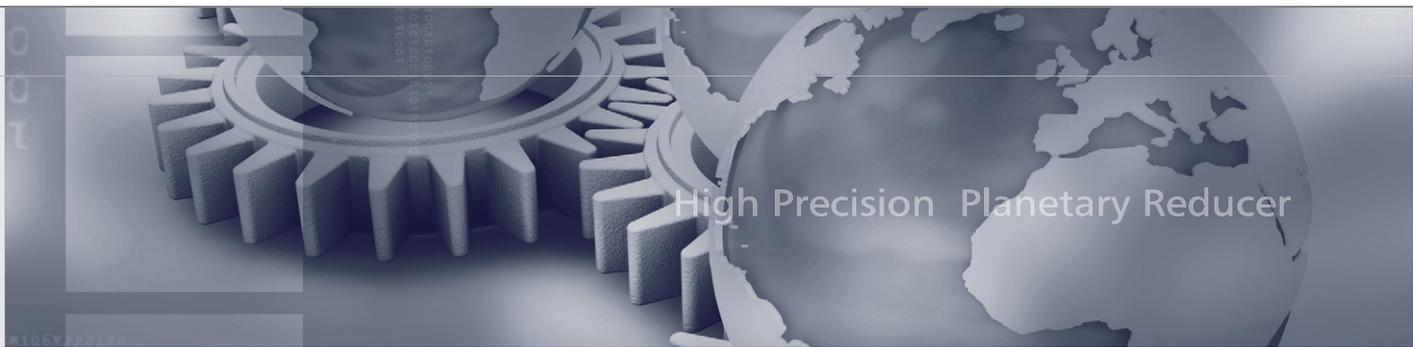


MODEL : PGX (44~142) - H
Single Reduction
RATIO : 3.4.5.6.7.8.9.10



unit:mm

Model code	44	62	90	120	142
A					
A1	50	70	100	130	165
A2	4.5	5.5	6.8	9	11
A3	13	16	22	32	40
A4	35	50	80	110	130
A5	5	6	9	10	10
A6	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75
A7	58	80	116	148	186
A8	5	5	6	10	12
A9	15	18	24.5	35	43
B					
B1	44	62	90	120	142
B2	26	36	48	65	92
B3	5	7	10	12	15
B4	1	1	2	3	3
B5	15	20	30	40	65
B6	20	28	36	50	74
B7	5	8	10	12	15
B8	31.5	38	49	61	70
B9	95	115,123	164.5	205	260.5
B10	9	11.5	16	19.5	20
C					
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165, 200, 215
C2	M3, M4, M5	M4, M5, M6	M4, M5, M6, M8	M6, M8, M10	M8, M10, M12
C3	5, 6.35, 8,(9, 11)	6.35, 8, 11 12, 14,(16, 19)	14, 16, 19,(22, 24)	19, 22, 24, 28,(32)	32, 35,(38)
C4	26	33.5, 41.5	59	67	84.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3, 130, 180
C6	M3	M4, M5	M6	M8	M10
C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 150, 180, 190
C8	37.5	41, 49	67.5	79	98.5


■ Mass Moments of Inertia (kg · cm²)

Ratio	44	62	90	120	142
3	0.03	0.16	0.61	3.25	9.21
4	0.03	0.14	0.48	2.74	7.54
5	0.03	0.13	0.47	2.71	7.42
6	0.03	0.13	0.45	2.65	7.25
7	0.03	0.13	0.45	2.62	7.14
8	0.03	0.13	0.44	2.58	7.07
9	0.03	0.13	0.44	2.57	7.04
10	0.03	0.13	0.44	2.57	7.03

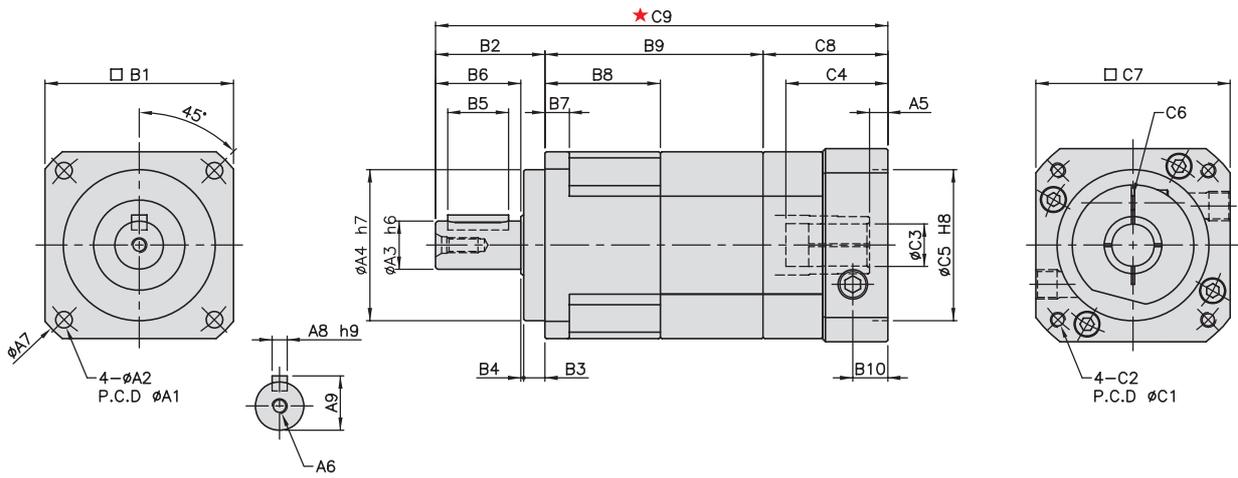
Model No.	Unit	Ratio	44	62	90	120	142
Rated Output Torque	Nm	3	17	54	145	301	553
		4	15	48	128	269	491
		5	14	45	132	278	510
		6	13	41	125	252	466
		7	13	41	123	258	473
		8	12	39	115	241	442
		9	11	40	120	227	412
		10	12	40	116	246	452
Max. Output Torque	Nm	3~10	3 Times of Rated Output Torque				
Rated Input Speed	rpm	3~10	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	Nm	3~10	6,000	6,000	6,000	5,000	5,000
Torsional Rigidity	Nm/arc min	3~10	3	6	14	27	60
Max. Radial Force	N	3~10	360	1,120	3,040	6,460	8,830
Max. Axial Force	N	3~10	180	560	1,520	3,230	4,410
Service Life	hr	3~10	10,000 (Continuous Operation 4,000 hrs)				
Efficiency	%	3~10	≥97%				
Operating Temperature	°C	3~10	-25 °C ~ +90 °C				
Lubrication		3~10	VIGO GREASE RE#0				
Degree of Gearbox Protection		3~10	IP65				
Mounting Position		3~10	Any				
Noise Level	dB	3~10	≤ 56	≤ 60	≤ 60	≤ 63	≤ 65
Weight ±3%	Kg	3~10	0.58	1.37	3.9	8	14.1



MODEL : PGX (44~142) - H

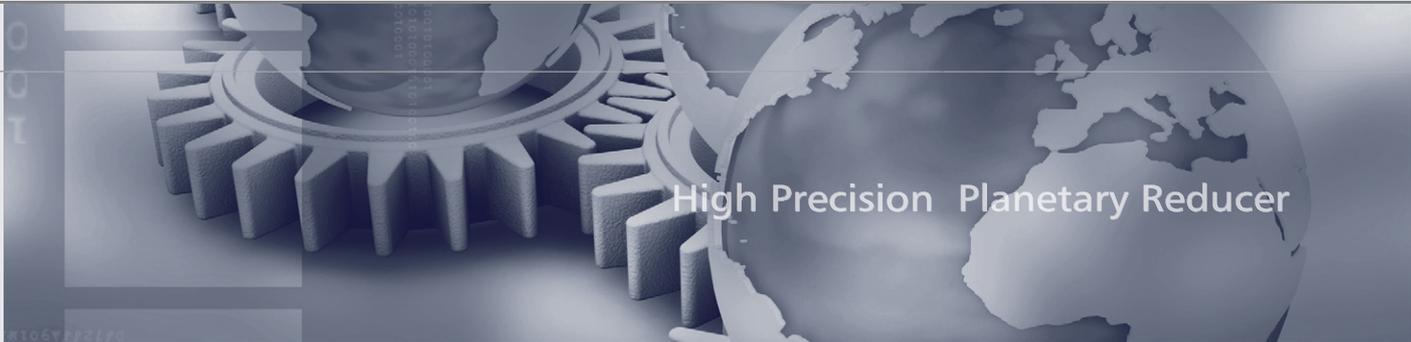
Double Reduction

RATIO : 15.20.25.30.35.40.50.60.70.80.90.100



unit:mm

Model code	44	62	90	120	142
A					
A1	50	70	100	130	165
A2	4.5	5.5	6.8	9	11
A3	13	16	22	32	40
A4	35	50	80	110	130
A5	5	6	9	10	10
A6	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75
A7	58	80	116	148	186
A8	5	5	6	10	12
A9	15	18	24.5	35	43
B					
B1	44	62	90	120	142
B2	26	36	48	65	92
B3	5	7	10	12	15
B4	1	1	2	3	3
B5	15	20	30	40	65
B6	20	28	36	50	74
B7	5	8	10	12	15
B8	31.5	38	49	61	70
B9	57.5	71.8	92.5	117	136.5
B10	9	11.5	16	19.5	20
C					
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165, 200, 215
C2	M3, M4, M5	M4, M5, M6	M4, M5, M6, M8	M6, M8, M10	M8, M10, M12
C3	5, 6.35, 8, (9, 11)	6.35, 8, 11, 12, 14, (16, 19)	14, 16, 19, (22, 24)	19, 22, 24, 28, (32)	32, 35, (38)
C4	26	33.5, 41.5	59	67	84.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 130 114.3, 180
C6	M3	M4	M6	M8	M10
C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190
C8	37.5	41, 49	67.5	79	98.5
C9	121	156.8, 148.8	208	261	327



High Precision Planetary Reducer

■ Mass Moments of Inertia (kg · cm²)

Ratio	44	62	90	120	142
15	0.03	0.03	0.14	0.46	2.63
20	0.03	0.03	0.14	0.46	2.63
25	0.03	0.03	0.14	0.46	2.63
30	0.03	0.03	0.14	0.46	2.63
35	0.03	0.03	0.14	0.44	2.43
40	0.03	0.03	0.14	0.44	2.43
50	0.03	0.03	0.14	0.44	2.43
60	0.03	0.03	0.14	0.43	2.39
70	0.03	0.03	0.14	0.43	2.39
80	0.03	0.03	0.14	0.43	2.39
90	0.03	0.03	0.14	0.40	2.39
100	0.03	0.03	0.14	0.40	2.39

Model No.	Unit	Ratio	44	62	90	120	142
Rated Output Torque	Nm	15	17	54	145	301	553
		20	15	48	128	269	491
		25	14	45	132	278	510
		30	13	41	125	252	466
		35	13	41	123	258	473
		40	12	39	115	241	442
		50	14	45	132	278	510
		60	13	41	125	252	466
		70	13	41	123	258	473
		80	12	40	115	241	442
		90	11	40	120	227	412
100	12	40	116	246	452		
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque				
Rated Input Speed	rpm	15~100	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	Nm	15~100	6,000	6,000	6,000	5,000	5,000
Torsional Rigidity	Nm/arc min	15~100	3	6	14	27	60
Max. Radial Force	N	15~100	360	1,120	3,040	6,460	8,830
Max. Axial Force	N	15~100	180	560	1,520	3,230	4,410
Service Life	hr	15~100	10,000 (Continuous Operation 4,000 hrs)				
Efficiency	%	15~100	≥94%				
Operating Temperature	°C	15~100	-25°C ~ +90°C				
Lubrication		15~100	VIGO GREASE RE#0				
Degree of Gearbox Protection		15~100	IP65				
Mounting Position		15~100	Any				
Noise Level	dB	15~100	≤56	≤60	≤60	≤63	≤65
Weight ±3%	Kg	15~100	0.86	2.1	5.48	12.9	22.8

* 연속운전 사용시 본사와 상담후 선정바랍니다.



PBL-H Type (Standard Helical Gear Type)

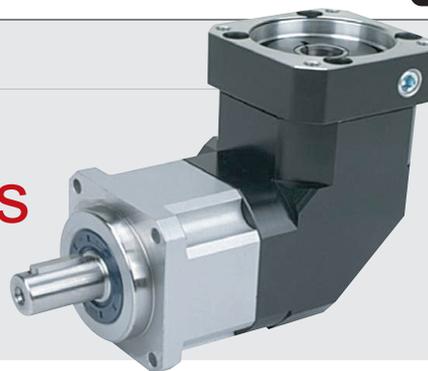
Single Stage Backlash \leq 10 arc-min
 Double Stage Backlash \leq 12 arc-min

Indication of Model Numbers

PBL	90	-	H	10	-	Key Type
Type PBL	Model 44 62 90 120 142		Helical Gear	Ratio Single Stage 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20 Double Stage 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200.		Output Shaft Keyway <input type="checkbox"/> 무표기 Standard (Keyway) N : 표 기 Solid Output Shaft (No Keyway)



Features of PBL Series (Standard Helical Gear Type)



PBL



One-piece Helical Gear Box

기어박스과 내부 링은 하나의 구조로 이루어져 있습니다. 헬리컬 기어로 되어 있으며 기어의 교합율은 일반 스퍼 기어의 2배 이상이며 원활한 운전과 낮은 소음으로 높은 회전출력과 낮은 백래쉬를 특징으로 합니다.

The gear box and internal gear ring are one-piece constructed. The speed reduction mechanism employs helical gears, which provides two times meshing rate of teeth when comparing with regular spur gears. In addition, it also features extremely smooth running, low noise, high torque output and low backlash



Integrated Planetary Arm bracket

Planetary Arm Bracket과 출력 Shaft는 일체형 구조로 한번에 정밀 가공되어 비틀림 강도와 정밀도를 상승 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 a ccuracy in the specified tolerance.



Full Needle Bearing Design

Planetary 변속기어는 접촉면 증가를 위한 Retainer 없는 Full Needle Bearing 구조입니다. 구조적 강도와 출력 회전력을 상승 시킨것입니다.

The planetary gear transmission employs full needle bearings Without retainer to increase the contact surface, which greatly Upgrades structural rigidity and output torque .



Spiral bevel gear

한번에 접촉하는 기어 물림의 길이가 크기 때문에 일반 bevel gear에 비해 운동이 부드럽고, 고속 회전에서도 안정적이며 진동과 소음이 적습니다.

Bite at a time, the length of contact because of the size Compared to bevel gear movement is smooth. Stable at high speed, low noise and vibration



Collet chuck locking mechanism

Motor shaft를 연결하기 위한 방식으로 확실한 체결력과 높은 속도에서 구동 할 때에도 백래쉬가 발생하지 않습니다.

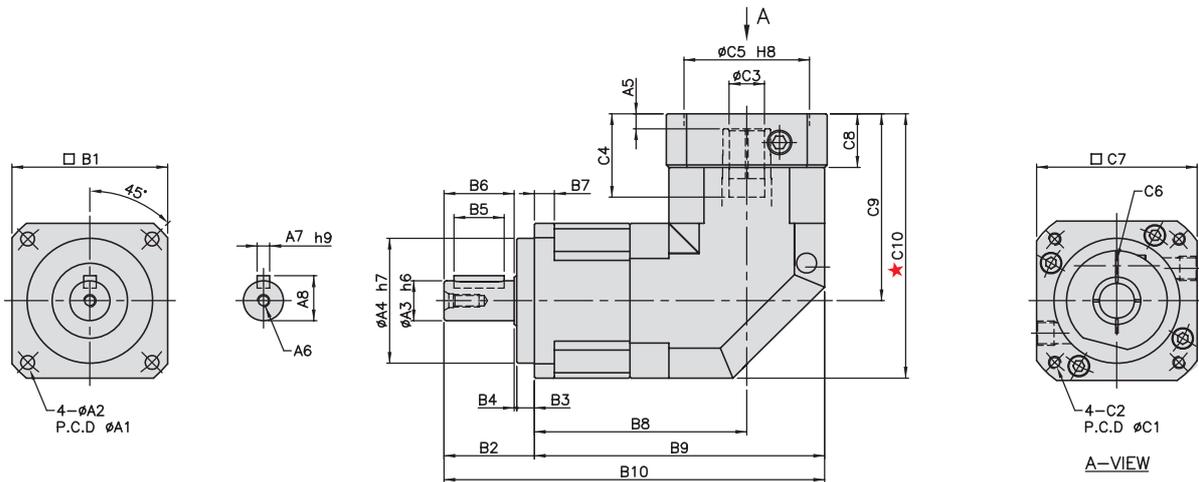
The input end and the motor is couple through a collet chuck locking mechanism, It is dynamically balanced to assure concentricity and balance on the connection when running at high speed. No backlash for transmission.



MODEL : PBL (44~142)-H

Single Reduction

RATIO : 3.4.5.6.7.8.9.10.12.14.16.18.20



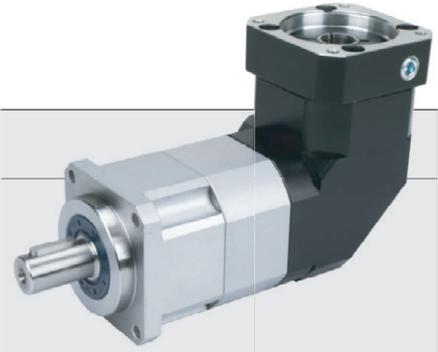
unit:mm

Model code	44	62	90	120	142	
A	A1	50	70	100	130	165
	A2	4.5	5.5	6.8	9	11
	A3	13	16	22	32	40
	A4	35	50	80	110	130
	A5	6	6	9	10	10
	A6	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75
	A7	5	5	6	10	12
	A8	15	18	24.5	35	43
	B	B1	44	62	90	120
B2		26	36	48	65	92
B3		5	7	10	12	15
B4		1	1	2	3	3
B5		15	20	30	40	65
B6		20	28	36	50	74
B7		5	8	10	12	15
B8		76	84.5	122.1	148	165.5
B9		98	115.5	167.1	208	236.5
B10		124	151.5	215.1	273	328.5
C	C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100, 145	90, 145	145, 165, 200, 215
	C2	M3, M4, M5	M4, M5, M6	M4, M5, M6, M8	M6, M8, M10	M8, M10, M12
	C3	5, 6.35 8,(9, 11)	11, 12 14,(16, 19)	14, 16 19,(22, 24)	19, 22 24, 28,(32)	32, 35,(38)
	C4	26	33.5, 41.5	53, 67.5	67	85
	C5	30, 40, 50	50, 60, 70	50, 70, 110	70, 110	110, 114.3, 130, 180
	C6	M3	M5	M6	M8	M10
	C7	46, 55, 60	64, 70, 80	92, 110, 130, 142	130, 150	146, 150, 180, 190
	C8	16	21.5	26.5, 41	35.5, 45.5	35.5
	C9	61	75	115.3, 129.8	141, 151	174
	C10	83	106	160.3, 174.8	201, 211	245



PBL

Model No.	Unit	Ratio	44	62	90	120	142
Rated Output Torque	Nm	3	17	54	145	301	553
		4	15	48	128	269	491
		5	14	45	132	278	510
		6	13	41	125	252	466
		7	13	41	123	258	473
		8	12	39	115	241	442
		9	11	40	120	227	412
		10	12	40	116	246	452
		12	13	41	125	252	466
		14	13	41	123	258	473
		16	12	39	115	241	442
		18	11	40	120	227	412
20	12	40	116	246	452		
Max. Output Torque	Nm	3~20	3 Times of Rated Output Torque				
Rated Input Speed	rpm	3~20	5,000	5,000	4,000	3,600	3,600
Max. Input Speed	Nm	3~20	6,000	6,000	6,000	5,000	5,000
Torsional Rigidity	Nm/arc min	3~20	3	6	14	27	60
Max. Radial Force	N	3~20	360	1,120	3,040	6,460	8,830
Max. Axial Force	N	3~20	180	560	1,520	3,230	4,410
Service Life	hr	3~20	10,000 (Continuous Operation 4,000 hrs)				
Efficiency	%	3~20	≥95%				
Operating Temperature	°C	3~20	-25°C ~ +90°C				
Lubrication		3~20	Synthetic Grease				
Degree of Gearbox Protection		3~20	IP65				
Mounting Position		3~20	Any				
Noise Level	dB	3~20	≤70	≤72	≤74	≤76	≤78
Weight ±3%	Kg	3~20	0.99	2.2	6.88	12.5	23.16

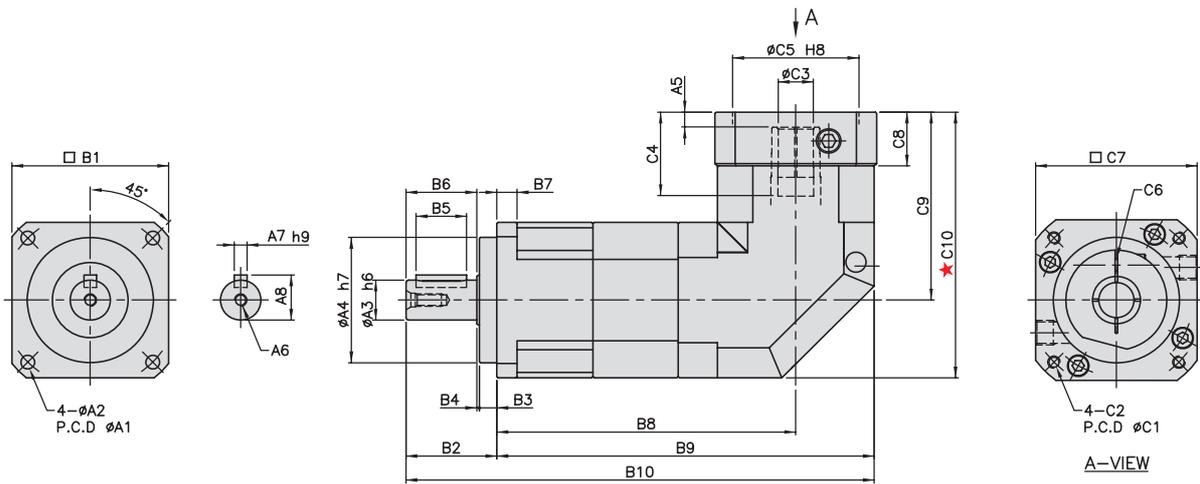


MODEL : PBL (44~142)-H

Double Reduction

RATIO : 15.20.25.30.35.40.50.60.70.80.

90. 100. 120. 140. 160. 180. 200



unit:mm

Model code	44	62	90	120	142
A					
A1	50	70	100	130	165
A2	4.5	5.5	6.8	9	11
A3	13	16	22	32	40
A4	35	50	80	110	130
A5	6	6	9	10	10
A6	M4 × P0.7	M5 × P0.8	M8 × P1.25	M10 × P1.5	M12 × P1.75
A7	5	5	6	10	12
A8	15	18	24.5	35	43
B					
B1	44	62	90	120	142
B2	26	36	48	65	92
B3	5	7	10	12	15
B4	1	1	2	3	3
B5	15	20	30	40	65
B6	20	28	36	50	74
B7	5	8	10	12	15
B8	102	118.3	165.6	204	232
B9	124	149.3	210.6	264	303
B10	150	185.3	258.6	329	395
C					
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100, 145	90, 145	145, 165, 200, 215
C2	M3, M4, M5	M4, M5, M6	M4, M5, M6, M8	M6, M8, M10	M8, M10, M12
C3	5, 6.35 8,(9, 11)	11, 12 14,(16, 19)	14, 16 19,(22, 24)	19, 22 24, 28,(32)	35, 35,(38)
C4	26	33.5, 41.5	53, 67.5	67	85
C5	30, 40, 50	50, 60, 70	50, 70, 110	70, 110	110, 114.3 130, 180
C6	M3	M4	M6	M8	M10
C7	46, 55, 60	64, 70, 80	92, 110, 130, 142	130, 150	146, 150, 180, 190
C8	16	21.5	26.5, 41	35.5, 45.5	35.5
C9	61	75	115.3, 129.8	141, 151	174
C10	83	106	160.3, 174.8	201, 211	245



High Precision Planetary Reducer

Model No.	Unit	Ratio	44	62	90	120	142
Rated Output Torque	Nm	15	17	54	145	301	553
		20	15	48	128	269	491
		25	14	45	132	278	510
		30	13	41	125	252	466
		35	13	41	123	258	473
		40	12	39	115	241	442
		50	11	45	132	278	510
		60	12	41	125	252	466
		70	13	41	123	258	473
		80	13	40	115	241	442
		90	12	40	120	227	412
		100	11	40	116	246	452
		120	12	41	125	252	466
		140	13	41	123	258	473
		160	13	39	115	241	442
		180	12	40	120	227	412
200	11	40	116	246	452		
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque				
Rated Input Speed	rpm	15~100		3,000	3,000	3,000	3,000
Max. Input Speed	Nm	15~100		6,000	6,000	5,000	5,000
Torsional Rigidity	Nm/arc min	15~100		6	14	27	60
Max. Radial Force	N	15~100		1,120	3,040	6,460	8,830
Max. Axial Force	N	15~100		560	1,520	3,230	4,410
Service Life	hr	15~100	10,000 (Continuous Operation 4,000 hrs)				
Efficiency	%	15~100	≥92%				
Operating Temperature	°C	15~100	-25°C ~ +90°C				
Lubrication		15~100	Synthetic Grease				
Degree of Gearbox Protection		15~100	IP65				
Mounting Position		15~100	Any				
Noise Level	dB	15~100	≤70	≤72	≤74	≤76	≤78
Weight ±3%	Kg	15~100	1.5	3	8.15	13.9	29.4

PBL



ATG (KSB, KSE) Planetary Reducers

ATG (KSB, KSE) Planetary Reducers

ATG Series의 고정밀 유성치차 감속기는 Helical gear를 사용하고 있습니다. 모든 기어는 고정밀CNC 기어 가공기에서 제작되어 기어 맞물림이 정확하며 가동은 부드럽고 소음은 최소화입니다.

일체형 기어박스 본체는 타사동급 제품에 비해 더 작은 구조(부피와 무게의 1/4이상 감소)이며 보다 큰 회전력과 효율을 자랑합니다.

ATG series high precision planetary gear reducer employs helical gears. All gears are high precision machined by CNC gear hobbing machine, providing high accuracy gear engagement, smooth running and minimum noise.

One-piece fabricated gear box body. When comparing with the competitive gear reducer, ATG gear reducer features smaller construction (Saves over 1/4 of volume and weight), higher torque output and higher transmission efficiency.

Features of KSB, KSE Series

Low Noise

65dB 이하

Low Backlash

1 Stage는 1 Arc-min~5 Arc-min.
2 Stage는 3 Arc-min~7 Arc-min으로 선택 설계 가능.

High Efficiency

1 stage 모델 효율성 97% 이내.
2 stage 모델은 94% 이내.

High Input Speed

입력 속도 5000 RPM 이상 허용.

High Torque

기존 Planetary 변속기어보다
보다 높은 Torque.

High Stability

높은 장력의 합금 사용.
기어 표면 경화는 표면만 경화가 아닌
기어 전체 경화로 만들어 짐.
이는 기어의 수명 연장과 오랜 기간의 운전 후에도
새 것 같은 정확성을 유지시켜 줌.

High Speed Reduction Ratio

모듈 디자인 기어감속기
유성기어 박스 연결가능
감속비율 1/1000 이상

Low Noise

Under 65dB

Low Backlash

Backlash is under 5 Arc-min Available to select specification with 1 Arc-min of backlash. Backlash for two-stage speed reduction is within 7 Arc-min.

High Efficiency

Efficiency for single stage model exceeds 97%.
For two-stage model exceeds 94%.

High Input Speed

Input speed allows for up to 5000 RPM.

High Torque

Higher torque output than that of conventional planetary gear reducers.

High Stability

Employs high tensile strength alloy steel. Gear hardening is made for the entire gear instead of only surface hardening, which extends gear service life and maintain high accuracy as new after a long period of operation.

High Speed Reduction Ratio

The gear reducer is a modular design. The planetary gear box can be connected. Speed reduction ratio is 1/1000.

Indication Of Model Numbers

KSB	90	10	P0	MOTOR
TYPE	MODEL	RATIO	BACKLASH CLASS	MOTOR TYPE
KSB	44	SINGLE STAGE 3~10	SINGLE STAGE PS ≤ 1 Arc-min	MOTOR BRAND & MODEL NO.
KSE	62	DOUBLE STAGE 15~100	PO ≤ 3 Arc-min	
KSB-A	90		P1 ≤ 5 Arc-min	
KSE-A	120	TRIPLE STAGE 125~1000	DOUBLE STAGE PS ≤ 3 Arc-min	
	142		PO ≤ 5 Arc-min	
	180		P1 ≤ 7 Arc-min	
	220			

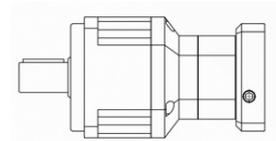
A-TYPE의 정의

1. IN SHAFT SIZE

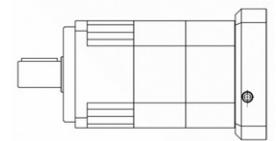
KSB-62-2 STAGE, KSB-142-2 STAGE, KSB-180-2 STAGE의 경우, 1/30 이하의 감속기에 MOTOR를 적용 시 감속기가 지원하는 IN SHAFT의 크기로 인해 조립할 수 없는 경우가 발생합니다. 이러한 경우 KSB-A TYPE의 감속기를 사용하셔야 합니다.

EX) KSB-62-15-P1 (IN SHAFT SIZE 8)+MITSUBISHI KFS43 (IN SHAFT SIZE 14) → 조립불가
 KSB-62A-15-P1 (IN SHAFT SIZE 14)+MITSUBISHI KFS43 (IN SHAFT SIZE 14) → 조립가능

MODEL	1 STAGE-IN SHAFT SIZE	2 STAGE-IN SHAFT SIZE	A TYPE
44	8	8	8(11)
62	14	8	14(16, 19)
90	19	14	19(22, 24)
120	24	19	24(28, 32)
142	35	24	35(38)
180	55	35	42(48, 55)
220	55	48	55



Standard



A-TYPE

() 안은 주문제작품입니다.

일반적으로 감속비가 1/15~1/30일 경우 감속기의 정격 및 최대 토오크 값이 모터의 정격 및 최대 토오크 범주 안에 속하기 때문에 안정성 있는 사용 환경을 보장합니다.

단, 감속비 1/30 이상일 경우 모터 토오크와 감속기 출력 토오크를 비교하여(감속기 효율 계산) 안전한 부하 토오크 조건내에서 적용하여 주시기 바랍니다.

2. 외관형태

KSB 감속기는 2 STAGE 부분이 더 작아지는 외관을 가지고 있습니다.

1 STAGE와 2 STAGE 부분의 SIZE가 동일한 제품을 사용하셔야 하실 경우, A-TYPE의 감속기를 선정하셔야 합니다.

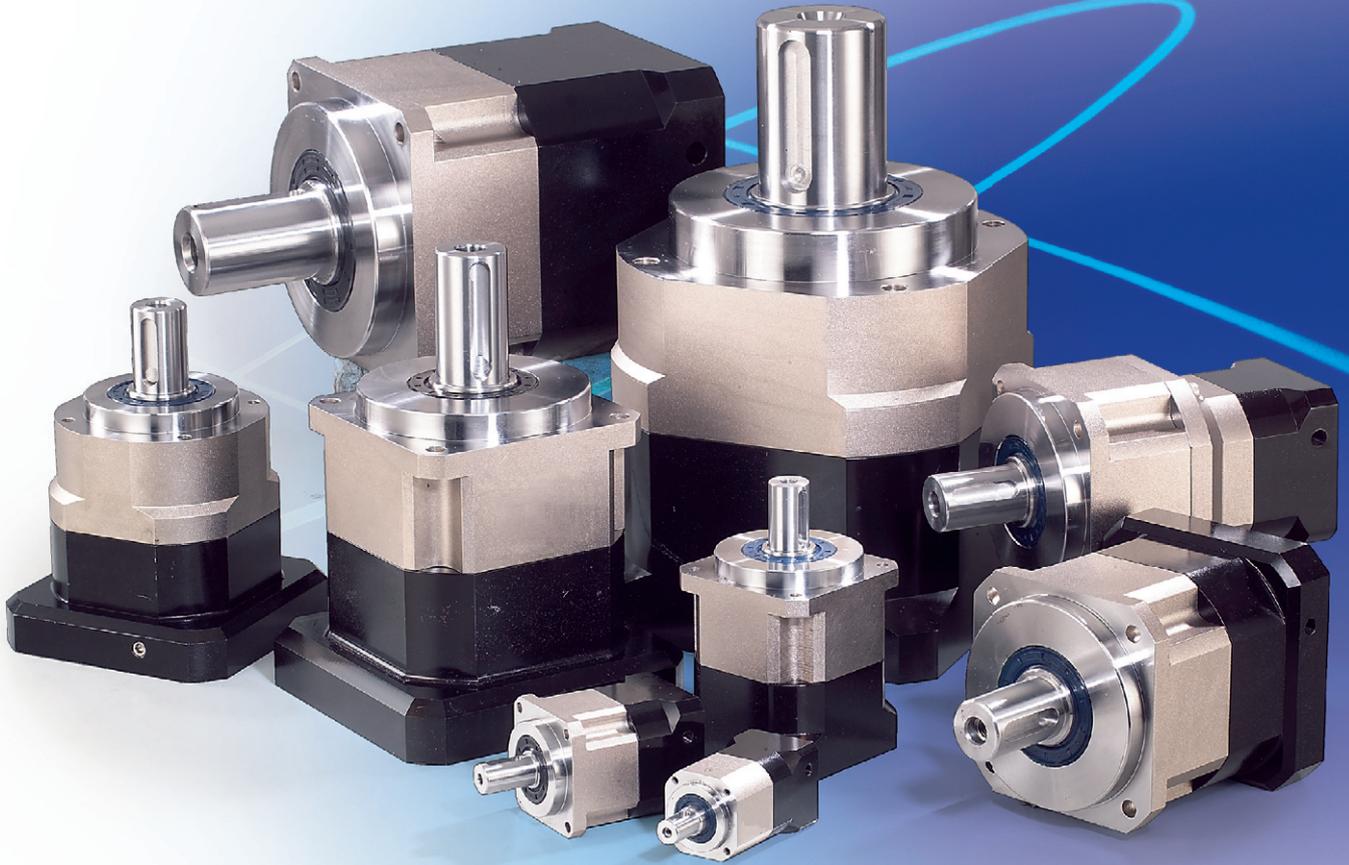


Concept of Planetary Reducer

중요한 기술적 요인인 기어, 감속비율, 평균 수명, 정격 회전력, 최대 효율, 소음, Axial과 Radial 구동능력, 작업온도의 성능에 대한 설명입니다.

Some critical technical parameters are normally applied for evaluating the performance of a gear reducer, speed reduction ratio, average service life, rated output torque, return full load efficiency, noise, axial and radial loading capacity and working temperature.

- **기어 비율** : 출력속도에서 입력속도의 비율.
GEAR RATIO : A ratio of output speed to input speed.
- **평균 수명** : 출력속도에 따른 감속기 운동시간의 지속적인 상태 비율.
AVERAGE SERVICE LIFE : Under the rated loading condition the continuous working time for a gear reducer running at the rated input speed.
- **최대 작업 효율** : 기어의 효율은 최대 작업 상태에 따른다.
이것은 좋은 성능과 함께 감속기의 매우 중요한 평가 요인이다.
FULL LOAD EFFICIENCY : The transmission efficiency of a gear reducer under the maximum loading condition. It is an important evaluation factor for a gear reducer. A gear reducer with high performance.
- **소음** : 소음은 입력 속도 3,000rpm 상태에서 감속기와 1미터 떨어진 지점에서 측정한다.
NOISE: The noise is measured under the conditions of input speed 3000 rpm, no load and one meter distance from the gear reducer.



- **작업 온도** : 감속기 사용의 적정 온도는 $-25 \sim +90^{\circ}\text{C}$ 의 환경에서 가능하다.
WORKING TEMPERATURE: The allowable temperature for a gear reducer under the conditions of continuous and frequent can work at $-25 \sim +90$ degree working environment.

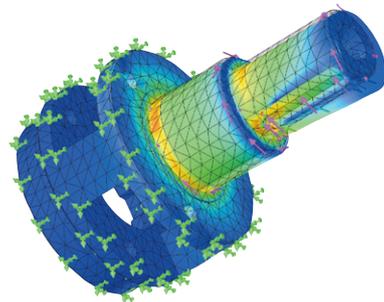


Concept of Planetary Reducer

STAGE NUMBERS : The sun gear and planetary gear forms an independent speed reduction gear train. If there is only one gear train in the gear reducer, it is defined as one stage transmission. In order to achieve higher speed reduction ratio, multiple stages transmission is required. Li Ming's standard gear reducers are classified into one stage and two-stage transmission. Speed reduction ratio range is from 3 to 100. The modular construction combined with multiple stages transmission allow speed reduction ratio from 100 to over 100,000.



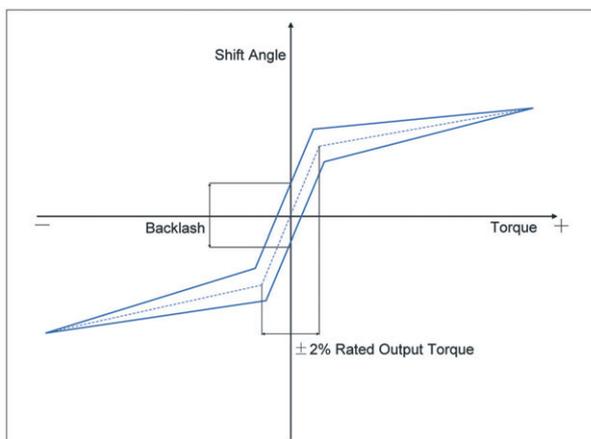
RATED OUTPUT TORQUE : Under the rated loading and long time running conditions, the allowable output torque for a gear reducer. The maximum output is the triple of this value.



CAE



Loading Test



일반적으로 감속기의 정도를 나타내는 BACK LASH를 측정할 때는 감속기의 정격 부하토크량의 2%를 가하여 측정된 값을 읽습니다.

BACK LASH : When the input end is fixed, the output end runs clockwise and counter-clockwise to create a + 2% of the rated torque at the output end. This will result in a slight angular displacement at the output end, which is called as return clearance Unit in arc-min, i.e., one sixtieth of a degree.

Set collar, Clamp 능력 TEST 결과치

ATG FLYING GEARHEAD HEADWORK AT		TEST RESULTS			LM - 080513		
		LI MING MACHINERY CO., LTD	TECHNICIAN : Cheng-Yi Chang		DATE: 13/05/2008		
MODEL	KSB	TEST CODE	LM-014524	RATIO	KSB-1/10	CLASS : P1	
Test Objective: Determine maximum torque capacity of set collar and clamp system Test Equipment: Torque wrench Test Method: 1. Secure set collar, insert the motor shaft into set collar 2. Tighten the set collar bolt with torque wrench 3. Then fixed in fixture and apply torque, until the motor shaft slip and record the torque value. 4. Record value from torque wrench				테스트 목적: Set Collar와 클램핑 시스템의 최대 토크를 측정하기 위함 테스트장비: 토크 렌치 테스트 방법: 1. Set Collar를 고정한 후, motor shaft를 넣는다. 2. 토크 렌치로 Set Collar를 조인다. 3. 고정장치에 토크 값을 적용한 후, motor shaft slip이 일어나는 값을 기록한다. 4. 토크 렌치로부터 값을 기록한다.			
Table A							
MODEL	Clamp screw	Strength tightening torque	Tighten torque (N.M)	Value (n.M)			
KSB 44	M3*P 0.5	12.9	2.2	58			
KSB 62	M4*P 0.7	12.9	4.83	102			
	M5*P 0.8	12.9	10	164			
KSB 90	M6*P 1.0	12.9	16.3	233			
KSB 120	M8*P 1.25	12.9	41	423			
KSB 142, 180, 220	M10*P 1.5	12.9	81	678			

Lubricating GREASE

VIGO GREASE RE #0

*VIGO GREASE RE #0 제품은 열 안정성이 우수한 합성 기유와 내열성, 내수성 및 기계적 안정성이 우수한 리튬계 증주제, 극압 조건하에서 마모방지 성능이 탁월한 유기 몰리브덴 첨가제 및 고체윤활제 등을 주원료로 하여 제조된 로봇트 감속기어 전용 합성 그리스로서 일본의 주요 로봇트(화낙, 야스카와 등) 및 기어 제조사(TEIJIN SEIKI 등) 들로부터 승인을 획득한 우수한 제품입니다.

*본 제품은 합성계 기유로 제조되어 광범위한 온도에서 적용이 가능하며, 유동성이 우수하여 감속기어의 복잡한 윤활부위에 잘 침투되어 기어를 윤활시켜 줌으로서 설비의 효율을 향상시켜 주고, 설비의 수명을 연장시켜 주는 특징이 있어 과도한 조건하에서 운전되는 산업용 로봇트의 감속기어 부위 윤활에 가장 적합합니다.

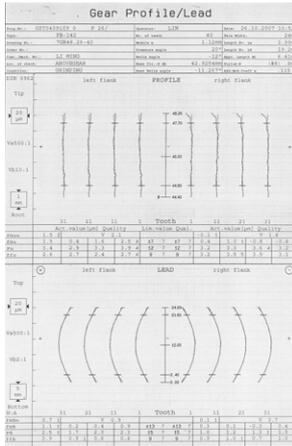
*사용온도 범위 : -40 ~ 130°C

대표성상

시험항목	시험방법	VIGOGREASE RE #0
증주제 종류	적외선분광계	리튬
외관	육안	노란색, 버터상
혼화주도	ASTM D 217	385
적점	ASTM D 566	190
동판부식 (100°C x 24h)	ASTM D 4048	부식없음
혼화안정도, 10만회	ASTM D 217	400
산화안정도 (99°C x 100h), kPa	ASTM D 942	20
고속 4-ball 극압성능, 용착점, N	ASTM D 2596	3,089
저온 토크 시험 (-30°C), mN m	ASTM D 1478-63	
기동 토크		220
회전 토크		32



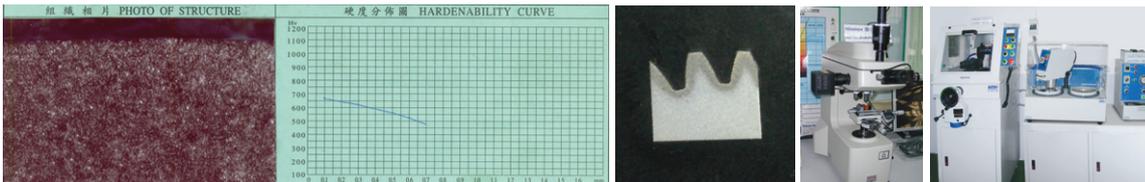
Gear Profile/Lead



HIGH PRECISION GEAR MACHINING : The planetary gear and sun gear are manufactured from high quality Cr-Mo alloy steel(SNCM220), precision machined and carburized to hardness 57-60 HRC. Precision teeth grinding assures gear accuracy reaches DIN6 CLASS. It provides better wear resistance, impact resistance and longer service life than gears with only surface nitrided.

Heat Treatment

- Metallograph
- Hardenability curve



Lubrication

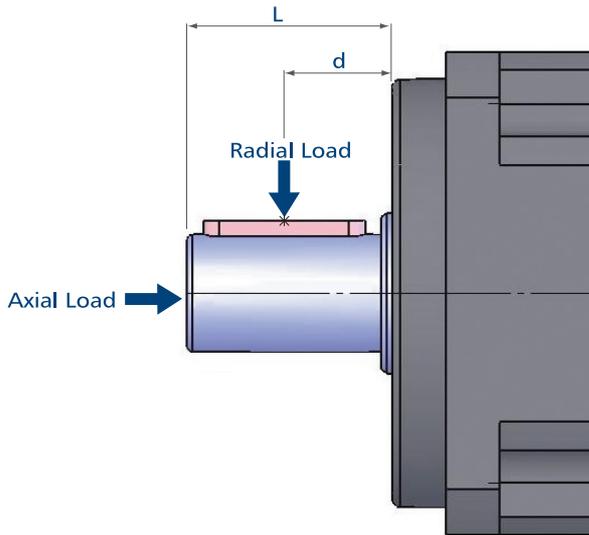


- IP65 Test Report by Metal Industries & Development centre.

- **LUBRICATION** : It's no essential to replace lubricant during the service life of the planetary gear reducer. IEC-529 STANDARD 규정 등급입니다. 즉, KSB SERIES 감속기는 방진 방수를 가진 구조라는 뜻입니다.

첫 번째 보호 등급		두 번째 보호 등급	
NO	고형 물체의 침투, 접촉에 의한 보호 등급	NO	물의 침입에 대한 보호 등급
0	보호 없음	0	보호 없음
1	직경 50mm 이상의 고체에 보호	1	응결된 물방울에 대한 보호
2	직경 50mm 이상의 고체에 보호	2	15° 각도에서 떨어지는 물방울에 보호
3	직경 50mm 이상의 고체에 보호	3	60° 각도에서 떨어지는 물방울에 보호
4	직경 50mm 이상의 고체에 보호	4	모든 방향에서 분사되는 물의 침투 방지
5	운전에 영향을 안 줄 정도의 먼지에 대한 보호	5	모든 방향에서 분사되는 압력을 가진 물의 침투 방지
6	먼지에 대한 완전한 보호	6	고압 분무기로 분사되는 물의 침투 방지
		7	잠정적으로 침수된 물속에서의 물의 침투 방지
		8	압력을 가진 수중에서의 보호

Permitted Radial Loads on Output Shaft of the Gearbox



감속기의 OUT SHAFT 쪽에 벨트를 이어 기구에 동력전달을 할 때, Radial load(OHL)를 계산하는 방식은 아래와 같습니다.

$$OHL = (T \times s \times f \times p) / R$$

T = 사용할 최대 토오크

s = 부하 하중(아래 Table-1 표)

f = 주행 하중(아래 Driven Coefficient 표)

p = 위치점: 부하 값이 D와 같으면 P = 1

부하 값이 D 보다 크면 P = 1.5

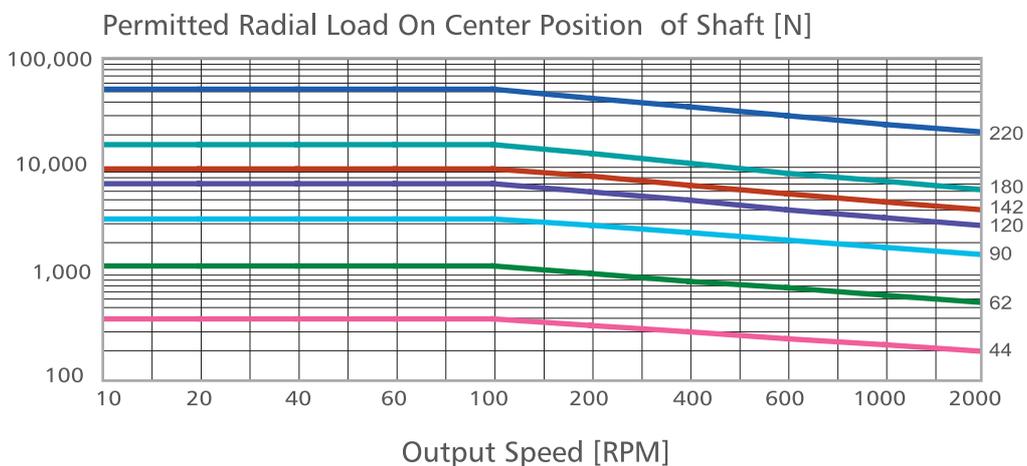
R = 벨트 풀리 또는 제안 풀리의 반지름 값

Table-1 (s)				
Loading classification	Running per Day			
	0.50 hr	2 hr	8~10 hr	10~24hr
Uniform	0.80	0.90	1.00	1.25
Medium shock	0.90	1.00	1.25	1.50
Heavy shock	1.00	1.25	1.50	1.75

Driven Coefficient (f)	
Driven	(f)
Chain pully	1.00
Gear	1.25
V-belt	1.50
Flat-belt	2.50

- 한시간 이내에 정회전·역회전·정지 상태를 10회 이상 바꿀 시에는 상기표에 기재된 Data 값의 ±20% 차이가 나타날 수도 있습니다.

- The permitted radial load is reduced when output RPM increased.





ATG Planetary Reducers



Helical gear design

기어 맞물림이 평기어의 2배 이상인 Helical gear 적용으로 동작 소음을 최소화하고 고투출력, 저소음, 저백래시를 실현하였습니다.

The speed reduction mechanism employs helical gears, which provides two times of teeth profile engagement percentage when comparing with common spur gears. In addition, it also features extremely smooth running low noise, high torque output and low backlash.



Synthetic lubrication grease

누유 방지를 위하여 IP 65등급의 밀폐 설계와 첨단 합성 윤활 시스템을 적용 하였습니다.

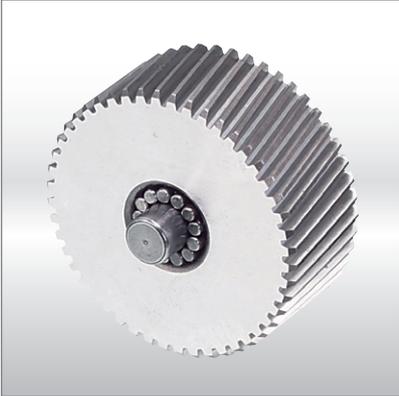
Employs synthetic lubrication. The class IP65 protective sealing design fully avoids leaking problem without maintenance.



Collet chuck locking mechanism

감속기의 입력과 Motor의 출력 shaft를 연결하기 위한 기계 구조입니다. 이는 역학상 확실한 체결력과 높은 속도에서 구동할 때 접촉의 균형을 이룰 수 있는 구조입니다.

The input end and the motor is coupled through a collet chuck locking mechanism. It is dynamically balanced to assure concentricity and balance on the connection when running at high speed. No backlash for power transmission.



Full needle bearings design

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

The Planetary gear transmission employs full needle bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and output torque.



Integrated planetary arm bracket

Planetary arm bracket와 출력 Shaft는 일체형 구조로 한번에 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.



High precision gear machining

감속기 내부의 유성기어와 선기어는 기어제작 용도의 크롬 몰리브덴 합금강으로 제조되었습니다. 기어의 강도는 57~60HRC이며 정밀도 향상을 위해 열처리 후 스카이빙 연마 공정을 적용하여 DIN 6 class(JIS 2급) 이내의 등급을 유지합니다. 특히 니트라이딩 열처리 공법에 비하여 보다 깊은 조직 강화를 통한 기어강도 및 제품 수명을 향상 하였습니다.

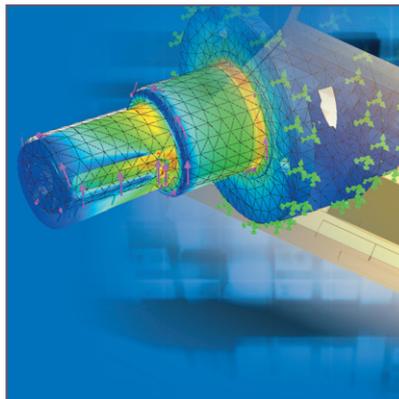
The Planetary gear and sun gear are manufactured from high quality Cr-Mo alloy steel(SNCM220), precision machined and carburized to address 57-60 HRC. Precision teeth grinding assures gear accuracy reaches DIN6 CLASS. It provides better wear resistance, impact resistance and longer service life than gears with only surface nitrided.



One-piece gear box body & advanced surface treatment

기어 제작용 합금강을 사용하여 적합한 열처리 공정 후 감속기 케이스에 내치기어를 직접 가공하여 고정밀, 고 강도를 실현하며 부식방지를 위한 내환경 표면처리를 하였습니다.

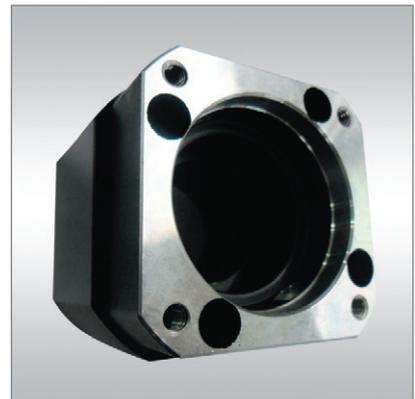
The gear box and internal ring are one-piece constructed, which is manufactured from Cr-Mo alloy steel(SCM435), and tempered for high torque output. High gear accuracy meets DIN6 class standard. Gear surface is anti-corrosive treated for upgrading environmental-resistant and corrosion-resistant capability.



3D-CAE design and analysis

기어 전문 3D-CAE 툴을 통한 모의 실험으로 최적의 구동조건 분석 후 완성되어진 디자인 입니다.

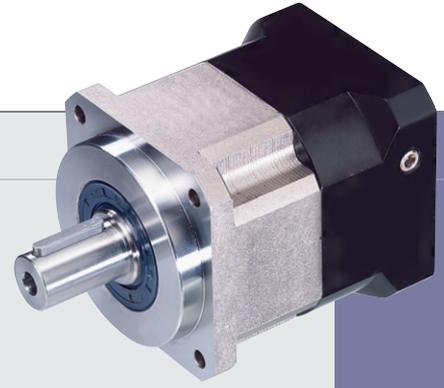
Employs 3D-CAE software for analysis and design. The software allows for analyzing the strength of the entire gear reducer and modifying the helical teeth profile and lead. This reduces impact and noise during teeth engage and disengage, while increasing the service life of gears and the gear reducer.



Modular design of motor connection plate

Motor connection plate의 스페셜 모듈 디자인은 모든 서보모터 적용이 가능하며 알루미늄 합금소재에 산화방지 및 부식방지를 위한 내환경 표면처리를 하였습니다.

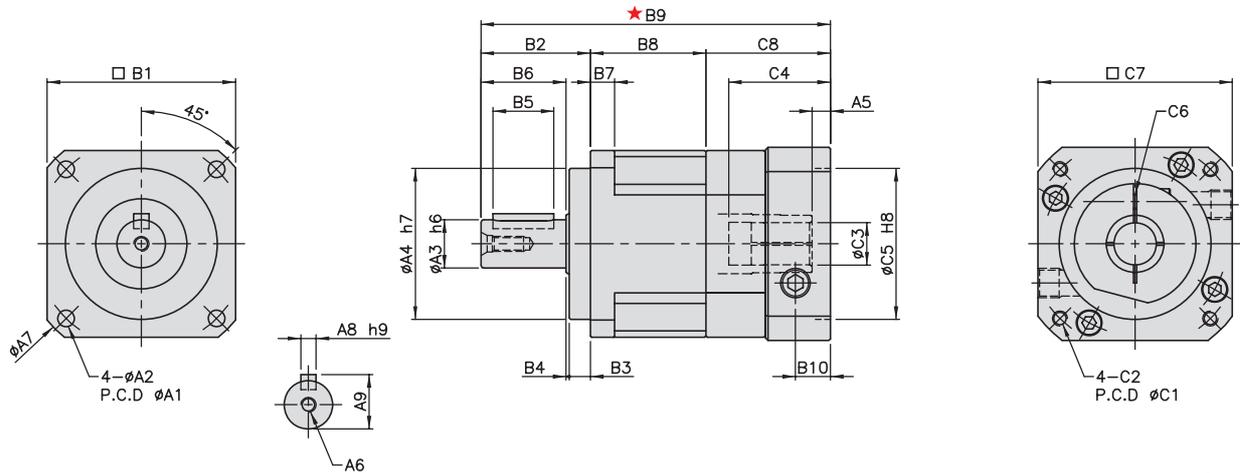
The special modular design of motor connection plate is suitable for any brand and any type of servomotor. Manufactured from aluminum alloy, its surface is anti-oxidant treated for upgrading environmental-resistant and corrosion-resistant capability.



MODEL : KSB

Single Reduction

RATIO : 3.4.5.6.7.8.9.10



unit:mm

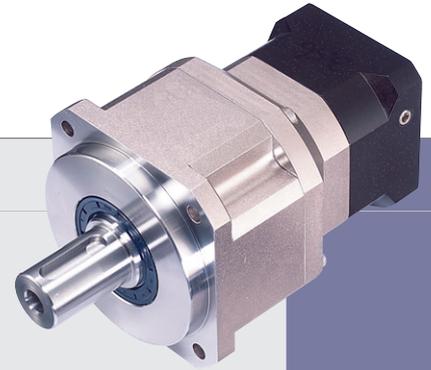
Model code	44	62	90	120	142	180	220
A							
A1	50	70	100	130	165	215	250
A2	4.5	5.5	6.8	9	11	13	17
A3	13	16	22	32	40	55	75
A4	35	50	80	110	130	160	180
A5	5	6	9	10	10	11.5	12.5
A6	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
A7	58	80	116	148	186	238	288
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
B							
B1	44	62	90	120	142	180	220
B2	26	36	48	65	92	106	139
B3	5	7	10	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
B8	31.5	38	49	61	70	85	93
B9	95	115, 123	164.5	205	260.5	323.5	367
B10	9	11.5	16	19.5	20	23.5	23.5
C							
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265, 300	215, 235 265, 300
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12	M12, M16	M12, M16
C3	5, 6.35, 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16, 19 (22, 24)	19, 22 24, 28,(32)	22, 24, 28 32, 35,(38)	38, 42, 48, 55	42, 48, 55
C4	26	33.5, 41.5	59	67	84.5	114.5	117.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230	180, 200 230, 250
C6	M3	M4, M5	M6	M8	M10	M10	M10
C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	182, 200 220, 250, 265	220, 250, 265
C8	37.5	41, 49	67.5	79	98.5	132.5	135.5

High Precision Planetary Reducer

■ Mass Moments of Inertia (kg · cm²)

Ratio	44	62	90	120	142	180	220
3	0.03	0.16	0.61	3.25	9.21	28.98	59.61
4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
10	0.03	0.13	0.44	2.57	7.03	22.51	50.56

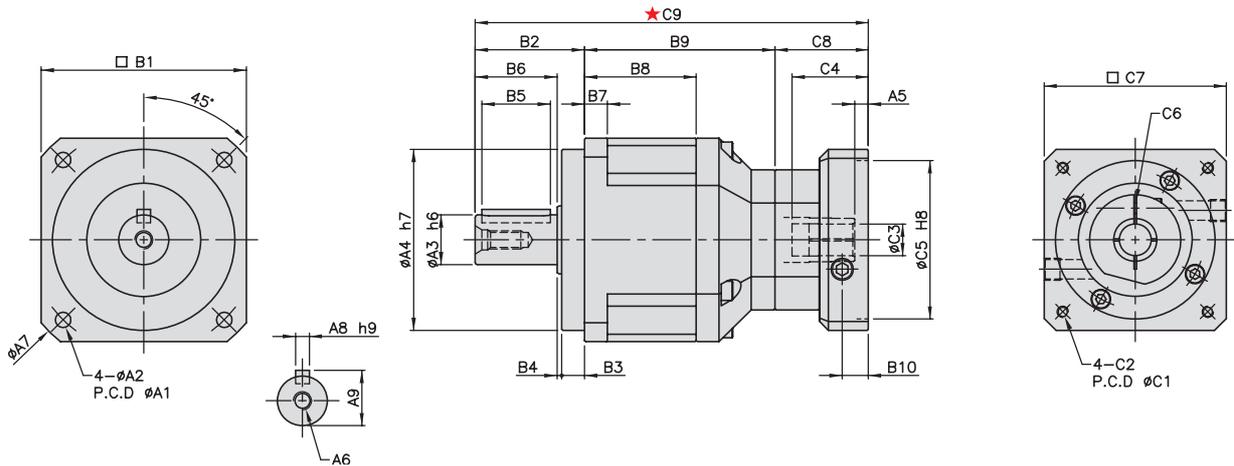
Model No.	Unit	Ratio	44	62	90	120	142	180	220
Rated Output Torque	Nm	3	19	59	165	335	625	1206	2030
		4	16	51	146	300	555	1069	1804
		5	16	48	160	333	618	1189	2010
		6	15	45	151	311	583	1118	1911
		7	15	45	149	309	573	1108	1870
		8	14	43	143	298	553	1070	1824
		9	13	44	145	278	516	993	1694
		10	14	43	141	294	549	1059	1779
Max. Output Torque	Nm	3~10	3 Times of Rated Output Torque						
Rated Input Speed	rpm	3~10	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	3~10	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Backlash P5	arc min	3~10			≤1	≤1	≤1	≤1	≤1
Backlash P0	arc min	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
Backlash P1	arc min	3~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Torsional Rigidity	Nm/arc min	3~10	3	6	14	27	60	140	240
Max. Radial Load	N	3~10	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	3~10	190	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	3~10	10,000 (4,000 / Continuous Operation)						
Efficiency	%	3~10	≥97						
Operating Temperature	°C	3~10	-25°C ~ +90°C						
Lubrication		3~10	VIGO GREASE RE #0						
Degree of Gearbox Protection		3~10	IP65						
Mounting Position		3~10	Any						
Noise Level	dB	3~10	≤56	≤58	≤60	≤63	≤65	≤67	≤70
Weight ±3%	kg	3~10	0.6	1.37	3.9	8	14.2	29.3	39.2



MODEL : KSB

Double Reduction

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit:mm

Model code	62	90	120	142	180	220
A	A1	70	100	130	165	215
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	50	80	110	130	160
	A5	5	6	9	10	11.5
	A6	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0
	A7	80	116	148	186	238
	A8	5	6	10	12	16
	A9	18	24.5	35	43	59
B	B1	62	90	120	142	180
	B2	36	48	65	92	106
	B3	7	10	12	15	20
	B4	1	2	3	3	4
	B5	20	30	40	65	70
	B6	28	36	50	74	82
	B7	8	10	12	15	16
	B8	38	49	61	70	85
	B9	66	83.5	108.5	127.5	154
	B10	9	11.5	16, 30.5	19.5, 27.5	20
C	C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165, 200, 215
	C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12 M12, M16
	C3	5, 6.35, 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16, 19,(22, 24)	19, 22, 24, 28,(32)	22, 24, 28 32, 35,(38) 38, 42, 48, 55
	C4	26	33.5, 41.5	59	67	84.5 114.5
	C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3, 130, 180 114.3, 180, 200, 230
	C6	M3	M4, M5	M6	M8	M10 M10
	C7	46, 55, 60	64, 70, 80	92, 110, 130, 142	130, 150	146, 150, 180, 190 182, 200, 220, 250, 265
	C8	37.5	41, 49	67.5	79	98.5 132.5
	C9	139.5	172.5, 180.5	241	298.5	358.5 446.5

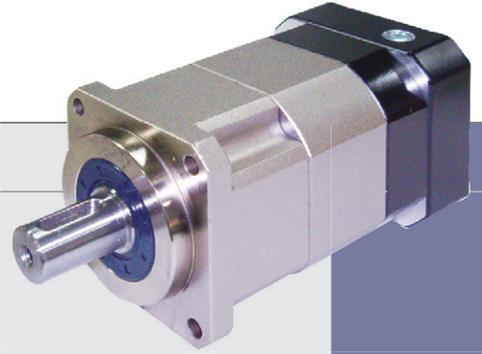
High Precision Planetary Reducer

■ Mass Moments of Inertia (kg · cm²)

Ratio	62	90	120	142	180	220
15	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.14	0.43	2.39	6.72	21.83
90	0.03	0.14	0.40	2.39	6.72	21.60
100	0.03	0.14	0.40	2.39	6.72	21.60

Model No.	Unit	Ratio	62	90	120	142	180	220
Rated Output Torque	Nm	15	59	165	335	625	1206	2030
		20	51	146	300	555	1069	1804
		25	48	160	333	618	1189	2010
		30	45	151	311	583	1118	1911
		35	45	149	309	573	1108	1870
		40	43	143	298	553	1070	1824
		50	48	160	333	618	1189	2010
		60	45	151	311	583	1118	1911
		70	45	149	309	573	1108	1870
		80	43	143	298	553	1070	1824
		90	44	145	278	516	993	1694
100	43	141	294	549	1059	1779		
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque					
Rated Input Speed	rpm	15~100	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	15~100	10,000	8,000	8,000	6,000	6,000	4,000
Backlash P5	arc min	15~100			≤3	≤3	≤3	≤3
Backlash P0	arc min	15~100	≤5	≤5	≤5	≤5	≤5	≤5
Backlash P1	arc min	15~100	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arc min	15~100	6	14	27	60	140	240
Max. Radial Load	N	15~100	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	15~100	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	15~100	10,000 (4,000 / Continuous Operation)					
Efficiency	%	15~100	≥94%					
Operating Temperature	°C	15~100	-25°C ~ +90°C					
Lubrication		15~100	VIGO GREASE RE #0					
Degree of Gearbox Protection		15~100	IP65					
Mounting Position		15~100	Any					
Noise Level	dB	15~100	≤58	≤60	≤63	≤65	≤67	≤70
Weight ±3%	kg	15~100	1.73	4.6	9.42	20.5	39.14	54.2

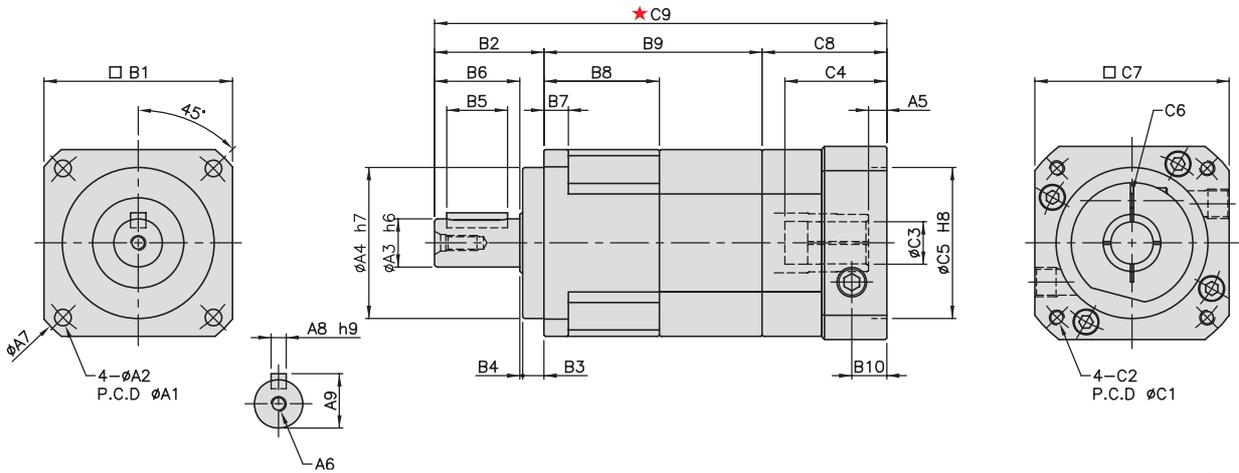
* 연속운전 사용시 본사와 상담후 선정바랍니다.



MODEL : KSB-A

Double Reduction

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit:mm

Model code	44A	62A	90A	120A	142A	180A	220A	
A	A1	50	70	100	130	165	215	250
	A2	4.5	5.5	6.8	9	11	13	17
	A3	13	16	22	32	40	55	75
	A4	35	50	80	110	130	160	180
	A5	5	6	9, 23.5	10	10	11.5	12.5
	A6	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
	A7	58	80	116	148	186	238	288
	A8	5	5	6	10	12	16	20
	A9	15	18	24.5	35	43	59	79.5
B	B1	44	62	90	120	142	180	220
	B2	26	36	48	65	92	106	139
	B3	5	7	10	12	15	20	30
	B4	1	1	2	3	3	4	5
	B5	15	20	30	40	65	70	90
	B6	20	28	36	50	74	82	104
	B7	5	8	10	12	15	16	20
	B8	31.5	38	49	61	70	85	93
	B9	57.5	71.8	92.5	117	136.5	166	186
	B10	9	11.5	16	19.5	20	23.5	23.5
C	C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165, 200, 215	200, 215 235, 265, 300	215, 235, 265, 300
	C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12	M12, M16	M12, M16
	C3	5, 6.35, 8, (11)	6.35, 8, 11 12, 14, (16, 19)	14, 16, 19, (22, 24)	19, 22, 24, 28, (32)	22, 24, 28 32, 35, (38)	38, 42, 48, 55	42, 48, 55
	C4	26	33.5, 41.5	59	67	84.5	114.5	117.5
	C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3, 130, 180	114.3, 180 200, 230	180, 200, 230, 250
	C6	M3	M4, M5	M6	M8	M10	M10	M10
	C7	46, 55, 60	64, 70, 80	92, 110, 130, 142	130, 150	146, 150, 180, 190	182, 200, 220, 250, 265	220, 250, 265
	C8	37.5	41, 49	67.5	79	98.5	132.5	135.5
	C9	121	148.8, 156.8	208	261	327	404.5	460.5

High Precision Planetary Reducer

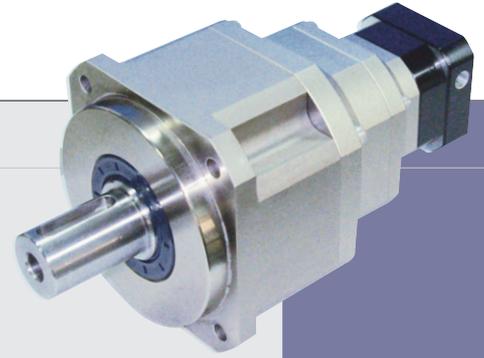
■ Mass Moments of Inertia (kg · cm²)

Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.03	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.03	0.14	0.43	2.39	6.72	21.83
90	0.03	0.03	0.14	0.40	2.39	6.72	21.60
100	0.03	0.03	0.14	0.43	2.39	6.72	21.83

KSB

Model No.	Unit	Ratio	44A	62A	90A	120A	142A	180A	220A
Rated Output Torque	Nm	15	19	59	165	335	625	1206	2030
		20	16	51	146	300	555	1069	1804
		25	16	48	160	333	618	1189	2010
		30	15	45	151	311	583	1118	1911
		35	15	45	149	309	573	1108	1870
		40	14	43	143	298	553	1070	1824
		50	16	48	160	333	618	1189	2010
		60	15	45	151	311	583	1118	1911
		70	15	45	149	309	573	1108	1870
		80	14	43	143	298	553	1070	1824
		90	13	44	145	278	516	993	1694
100	14	43	141	294	549	1059	1779		
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque						
Rated Input Speed	rpm	15~100	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	15~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Backlash PS	arc min	15~100				≤3	≤3	≤3	≤3
Backlash P0	arc min	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Backlash P1	arc min	15~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arc min	15~100	3	6	14	27	60	140	240
Max. Radial Load	N	15~100	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	15~100	190	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	15~100	10,000 (4,000 / Continuous Operation)						
Efficiency	%	15~100	≥94%						
Operating Temperature	°C	15~100	-25°C ~ +90°C						
Lubrication		15~100	VIGO GREASE RE #0						
Degree of Gearbox Protection		15~100	IP65						
Mounting Position		15~100	Any						
Noise Level	dB	15~100	≤56	≤58	≤60	≤63	≤65	≤67	≤70
Weight ±3%	kg	15~100	0.86	2.1	5.48	12.9	22.8	42.5	59.5

* 연속운전 사용시 본사와 상담후 선정바랍니다.

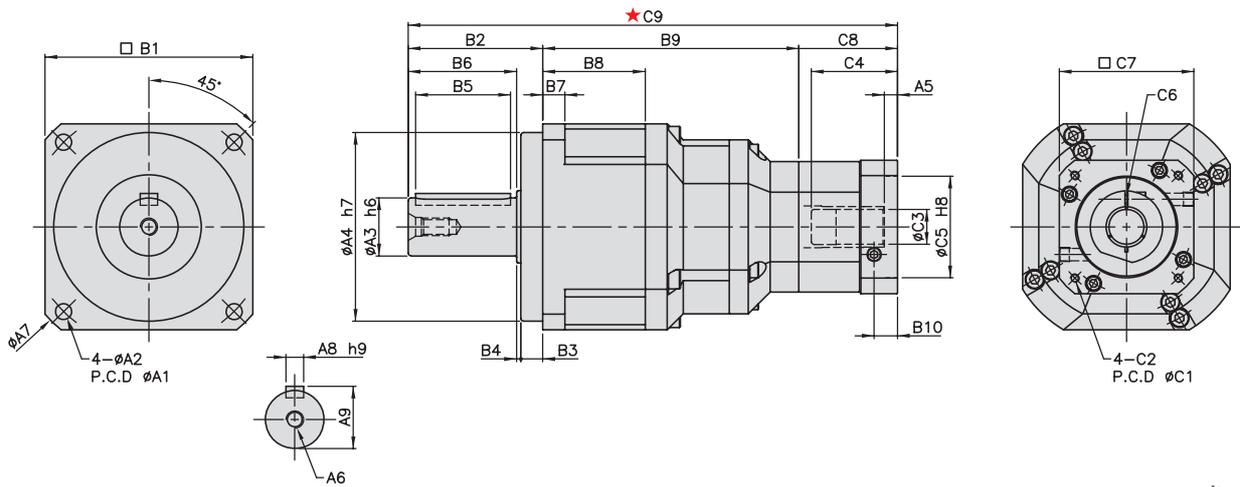


MODEL : KSB

Triple Reduction

RATIO : 125.150.175.200.250.300.350.

400.450.500.600.700.800.900.1000



unit:mm

Model code	90	120	142	180	220
A					
A1	100	130	165	215	250
A2	6.8	9	11	13	17
A3	22	32	40	55	75
A4	80	110	130	160	180
A5	5	6	9, 23.5	10, 20	10
A6	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
A7	116	148	186	238	288
A8	6	10	12	16	20
A9	24.5	35	43	59	79.5
B					
B1	90	120	142	180	220
B2	48	65	92	106	139
B3	10	12	15	20	30
B4	2	3	3	4	5
B5	30	40	65	70	90
B6	36	50	74	82	104
B7	10	12	15	16	20
B8	49	61	70	85	93
B9	111.5	143	175	211.5	244
B10	9	11.5	16	19.5	20
C					
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12
C3	5, 6.35, 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24, 28 32, 35,(38)
C4	26	33.5, 41.5	59	67	84.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180
C6	M3	M4, M5	M6	M8	M10
C7	46, 55, 60	64, 70, 80	92, 110, 130, 142	130, 150	146, 150, 180, 190
C8	37.5	41, 49	67.5	79	98.5
C9	197	249, 257	334.5	396.5	481.5

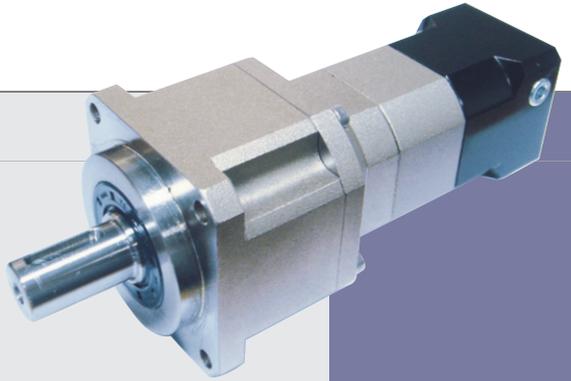
High Precision Planetary Reducer

■ Mass Moments of Inertia (kg · cm²)

Ratio	90	120	142	180	220
125	0.01	0.04	0.71	1.42	3.29
150	0.01	0.04	0.51	0.92	2.15
175	0.01	0.04	0.40	0.83	1.26
200	0.01	0.04	0.21	0.65	0.98
250	0.01	0.04	0.11	0.52	0.82
300	0.01	0.04	0.09	0.21	0.82
350	0.01	0.04	0.09	0.21	0.82
400	0.01	0.04	0.09	0.21	0.82
450	0.01	0.04	0.09	0.21	0.51
500	0.01	0.04	0.08	0.12	0.51
600	0.01	0.04	0.08	0.12	0.25
700	0.01	0.04	0.08	0.12	0.25
800	0.01	0.04	0.08	0.12	0.25
900	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.04	0.08	0.12	0.25

KSB

Model No.	Unit	Ratio	90	120	142	180	220
Rated Output Torque	Nm	125	160	333	618	1189	2010
		150	165	335	625	1206	2030
		175	149	309	573	1108	1870
		200	146	300	555	1069	1804
		250	160	333	618	1189	2010
		300	151	311	583	1118	1911
		350	149	309	573	1108	1870
		400	143	298	553	1070	1824
		450	145	278	516	993	1694
		500	160	333	618	1189	2010
		600	151	311	583	1118	1911
		700	149	309	573	1108	1870
		800	143	298	553	1070	1824
900	145	278	516	993	1694		
1000	141	294	549	1059	1779		
Max. Output Torque	Nm	125~1000	3 Times of Rated Output Torque				
Rated Input Speed	rpm	125~1000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	125~1000	8,000	8,000	6,000	6,000	4,000
Backlash PS	arc min	125~1000		≤ 5	≤ 5	≤ 5	≤ 5
Backlash P0	arc min	125~1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P1	arc min	125~1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Torsional Rigidity	Nm/arc min	125~1000	14	27	60	140	240
Max. Radial Load	N	125~1000	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	125~1000	1,600	3,400	4,650	7,800	25,500
Service Life	hr	125~1000	10,000 (4,000 / Continuous Operation)				
Efficiency	%	125~1000	≥ 90%				
Operating Temperature	°C	125~1000	-25°C ~ +90°C				
Lubrication		125~1000	VIGO GREASE RE #0				
Degree of Gearbox Protection		125~1000	IP65				
Mounting Position		125~1000	Any				
Noise Level	dB	125~1000	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight ±3%	kg	125~1000	5.3	12.6	24.9	49.8	78.6

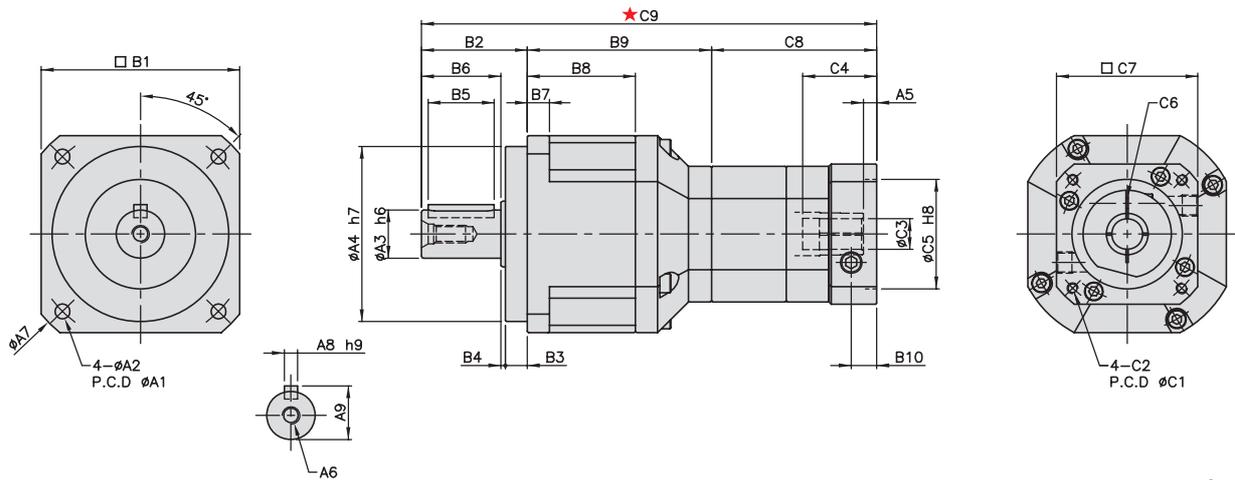


MODEL : KSB-A

Triple Stage

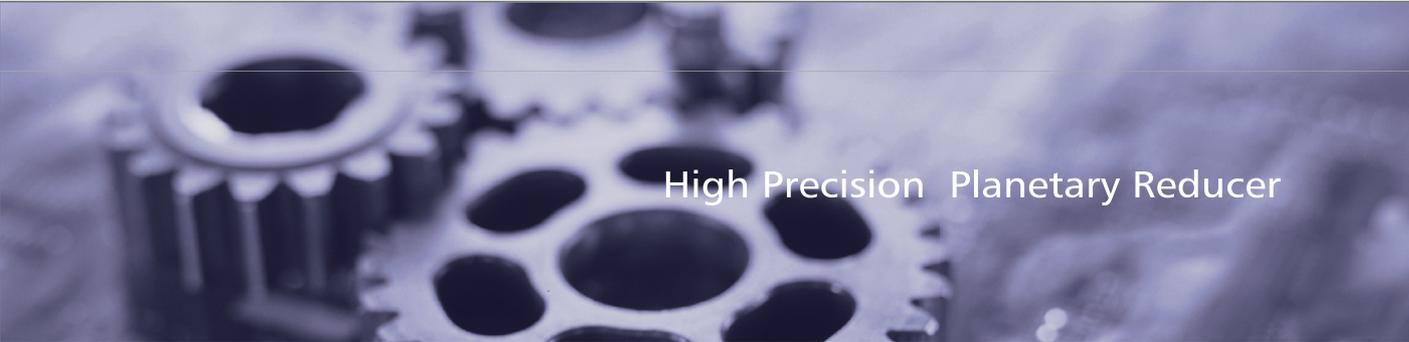
RATIO : 125.150.175.200.250.300.350.

400.450.500.600.700.800.900.1000



unit:mm

Model code	62A	90A	120A	142A	180A	220A
A A1	70	100	130	165	215	250
A2	5.5	6.8	9	11	13	17
A3	16	22	32	40	55	75
A4	50	80	110	130	160	180
A5	5	6	9, 23.5	10, 20	10	11.5
A6	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
A7	80	116	148	186	238	288
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B B1	62	90	120	142	180	220
B2	36	48	65	92	106	139
B3	7	10	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	8	10	12	15	16	20
B8	38	49	61	70	85	93
B9	92	117.3	152	183.5	220.5	256
B10	9	11.5	16, 30.5	19.5, 27.5	20	23.5
C C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165, 200, 215	200, 215 235, 265, 300
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12	M12, M16
C3	5, 6.35, 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16, 19,(22, 24)	19, 22, 24, 28,(32)	22, 24, 28 32, 35,(38)	38, 42, 48, 55
C4	26	33.5, 41.5	59	67	84.5	114.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230
C6	M3	M4, M5	M6	M8	M10	M10
C7	46, 55, 60	64, 70, 80	92, 110, 130, 142	130, 150	146, 150, 180, 190	182, 200, 220, 250, 265
C8	37.5	41, 49	67.5	79	98.5	132.5
C9	165.5	206.3, 214.3	284.5	354.5	425	527.5



High Precision Planetary Reducer

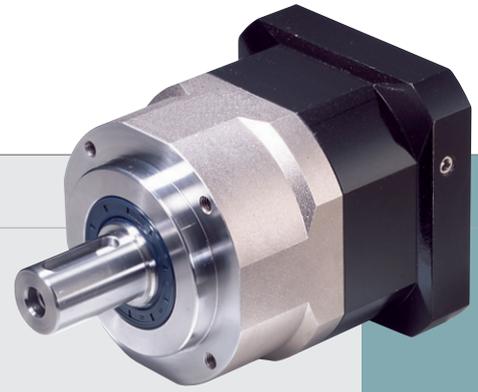
■ Mass Moments of Inertia (kg · cm²)

Ratio	62A	90A	120A	142A	180A	220A
125	0.01	0.01	0.04	0.71	1.42	3.29
150	0.01	0.01	0.04	0.51	0.92	2.15
175	0.01	0.01	0.04	0.40	0.83	1.26
200	0.01	0.01	0.04	0.21	0.65	0.98
250	0.01	0.01	0.04	0.11	0.52	0.82
300	0.01	0.01	0.04	0.09	0.21	0.82
350	0.01	0.01	0.04	0.09	0.21	0.82
400	0.01	0.01	0.04	0.09	0.21	0.82
450	0.01	0.01	0.04	0.09	0.21	0.51
500	0.01	0.01	0.04	0.08	0.12	0.51
600	0.01	0.01	0.04	0.08	0.12	0.25
700	0.01	0.01	0.04	0.08	0.12	0.25
800	0.01	0.01	0.04	0.08	0.12	0.25
900	0.01	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.01	0.04	0.08	0.12	0.25

KSB

Model No.	Unit	Ratio	62A	90A	120A	142A	180A	220A
Rated Output Torque	Nm	125	48	160	333	618	1189	2010
		150	59	165	335	625	1206	2030
		175	45	149	309	573	1108	1870
		200	51	146	300	555	1069	1804
		250	48	160	333	618	1189	2010
		300	45	151	311	583	1118	1911
		350	45	149	309	573	1108	1870
		400	43	143	298	553	1070	1824
		450	44	145	278	516	993	1694
		500	48	160	333	618	1189	2010
		600	45	151	311	583	1118	1911
		700	45	149	309	573	1108	1870
		800	43	143	298	553	1070	1824
900	44	145	278	516	993	1694		
1000	43	141	294	549	1059	1779		
Max. Output Torque	Nm	125~1000	3 Times of Rated Output Torque					
Rated Input Speed	rpm	125~1000	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	125~1000	10,000	8,000	8,000	6,000	6,000	4,000
Backlash P0	arcmin	125~1000	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P1	arcmin	125~1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P2	arcmin	125~1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Torsional Rigidity	Nm/arc min	125~1000	6	14	27	60	140	240
Max. Radial Load	N	125~1000	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	125~1000	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	125~1000	10,000 (4,000 / Continuous Operation)					
Efficiency	%	125~1000	≥ 90%					
Operating Temperature	°C	125~1000	-25°C ~ +90°C					
Lubrication		125~1000	VIGO GREASE RE #0					
Degree of Gearbox Protection		125~1000	IP65					
Mounting Position		125~1000	Any					
Noise Level	dB	125~1000	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight ± 3%	kg	125~1000	1.93	5.4	12.8	25.5	52.1	81.7

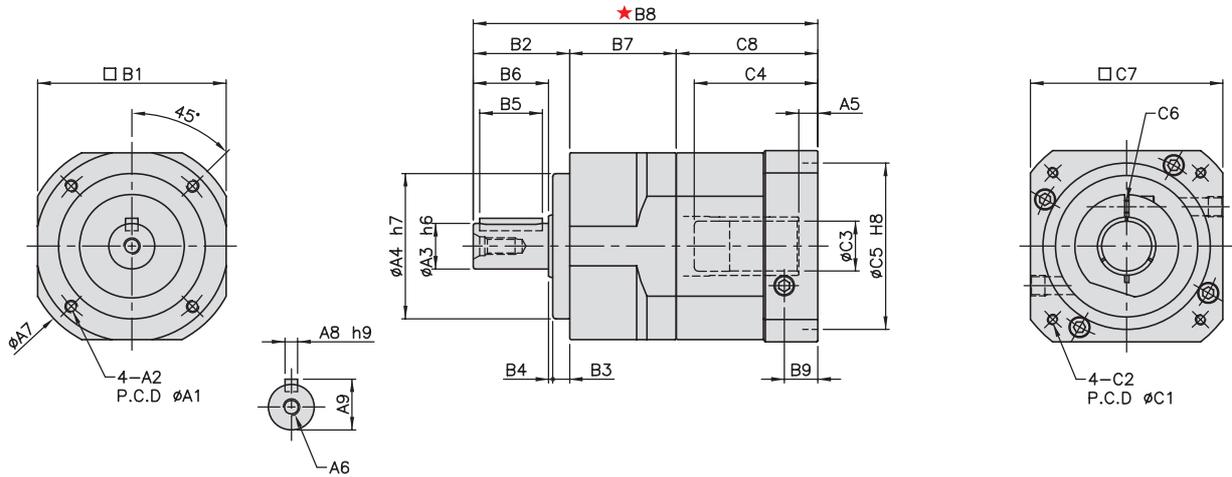
* 연속운전 사용시 본사와 상담후 선정바랍니다.



MODEL : KSE

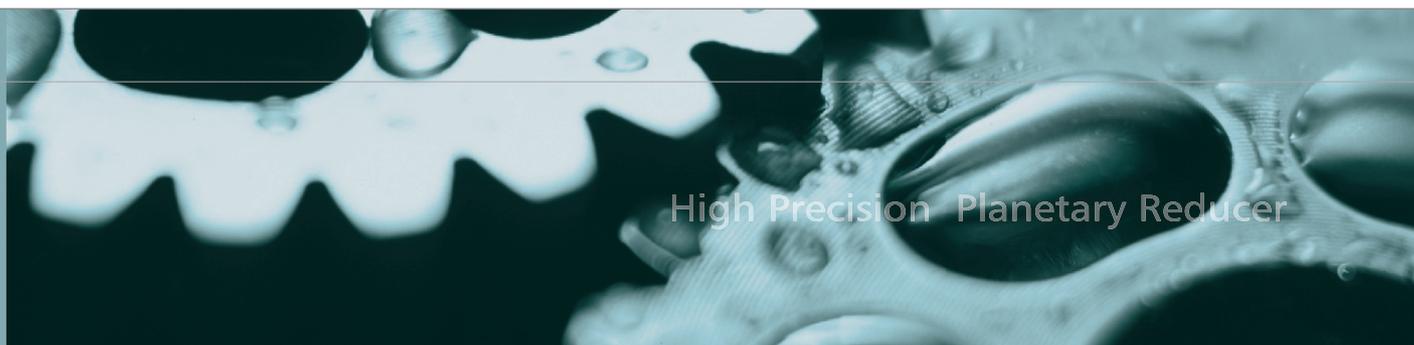
Single Reduction

RATIO : 3.4.5.6.7.8.9.10



unit:mm

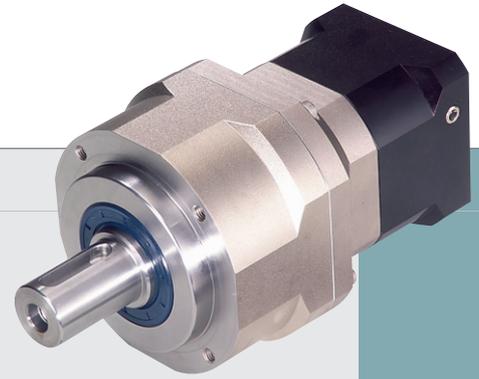
Model code	44	62	90	120	142	180	220	
A	A1	44	62	82	110	140	218	
	A2	M4×P0.7	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M16×P2.0	
	A3	13	16	22	32	40	75	
	A4	35	50	70	90	120	180	
	A5	5	6	9	10	10	12.5	
	A6	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M16×P2.0	
	A7	50	70	102	134	166	252	
	A8	5	5	6	10	12	20	
	A9	15	18	24.5	35	43	79.5	
B	B1	44	62	90	120	142	220	
	B2	26	36	46	65	92	139	
	B3	5	7	8	12	15	30	
	B4	1	1	2	3	3	5	
	B5	15	20	30	40	65	90	
	B6	20	28	36	50	74	104	
	B7	31.5	38	51	61	70	93	
	B8	95	115, 123	164.5	205	260.5	367	
	B9	9	11.5	16	19.5	20	23.5	
C	C1	46, 60 63, 70	46, 70 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265, 300	215, 235 265, 300
	C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12	M12, M16	M12, M16
	C3	5, 6.35 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24, 28 32, 35,(38)	38, 42, 48, 55	42, 48, 55
	C4	26	33.5, 41.5	59	67	84.5	114.5	117.5
	C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230	180, 200 230, 250
	C6	M3	M4, M5	M6	M8	M10	M10	M10
	C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	182, 200 220, 250, 265	220, 250, 265
	C8	37.5	41, 49	67.5	79	98.5	132.5	135.5



■ Mass Moments of Inertia (kg · cm²)

Ratio	44	62	90	120	142	180	220
3	0.03	0.16	0.61	3.25	9.21	28.98	69.61
4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
10	0.03	0.13	0.44	2.57	7.03	22.51	50.56

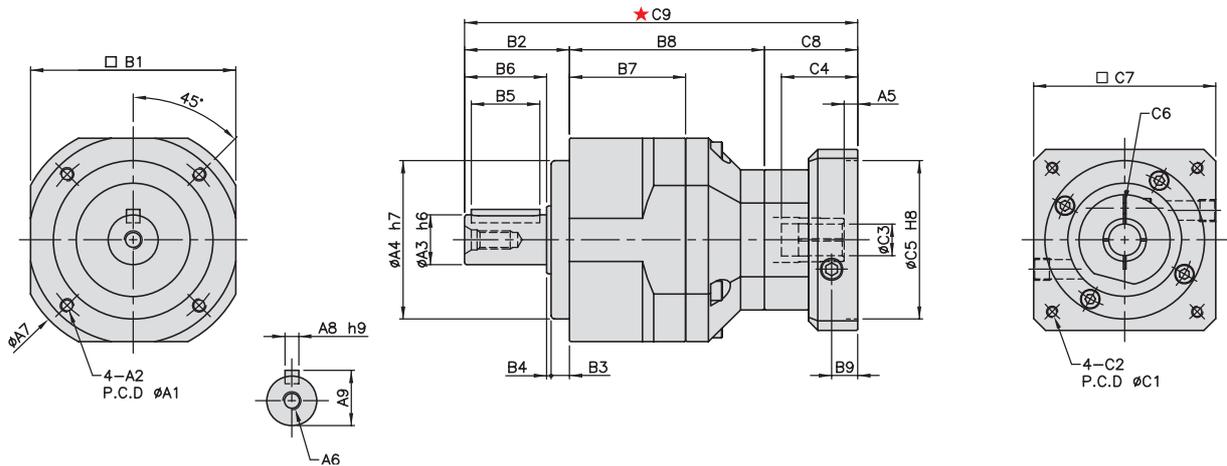
Model No.	Unit	Ratio	44	62	90	120	142	180	220
Rated Output Torque	Nm	3	19	59	165	335	625	1206	2030
		4	16	51	146	300	555	1069	1804
		5	16	48	160	333	618	1189	2010
		6	15	45	151	311	583	1118	1911
		7	15	45	149	309	573	1108	1870
		8	14	43	143	298	553	1070	1824
		9	13	44	145	278	516	993	1694
		10	14	43	141	294	549	1059	1779
Max. Output Torque	Nm	3~10	3 Times of Rated Output Torque						
Rated Input Speed	rpm	3~10	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	3~10	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Backlash P5	arc min	3~10			≤1	≤1	≤1	≤1	≤1
Backlash P0	arc min	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
Backlash P1	arc min	3~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Torsional Rigidity	Nm/arc min	3~10	3	6	14	27	60	140	240
Max. Radial Load	N	3~10	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	3~10	190	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	3~10	10,000 (4,000 / Continuous Operation)						
Efficiency	%	3~10	≥97						
Operating Temperature	°C	3~10	-25°C ~ +90°C						
Lubrication		3~10	VIGO GREASE RE #0						
Degree of Gearbox Protection		3~10	IP65						
Mounting Position		3~10	Any						
Noise Level	dB	3~10	≤56	≤58	≤60	≤63	≤65	≤67	≤70
Weight ±3%	Kg	3~10	0.51	1.23	3.7	7.5	13.9	28.5	38.6



MODEL : KSE

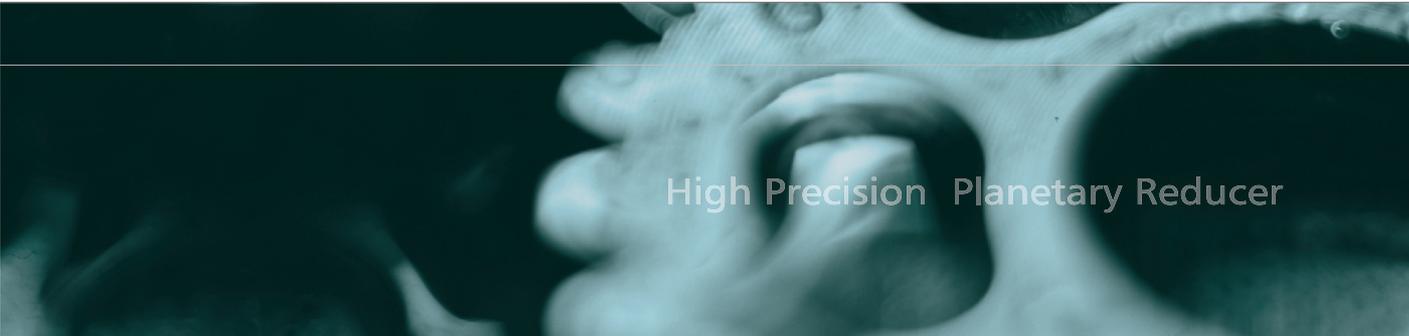
Double Reduction

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit:mm

Model code	62	90	120	142	180	220
A						
A1	62	82	110	140	184	218
A2	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M12×P1.75	M16×P2.0
A3	16	22	32	40	55	75
A4	50	70	90	120	160	180
A5	5	6	9, 23.5	10, 20	10	11.5
A6	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
A7	70	102	134	166	215	252
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B						
B1	62	90	120	142	180	220
B2	36	46	65	92	106	139
B3	7	8	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	38	51	61	70	85	93
B8	66	85.5	108.5	127.5	154	175
B9	9	11.5	16	19.5	20	23.5
C						
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265, 300
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12	M12, M16
C3	5, 6.35, 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24, 28 32, 35,(38)	38, 42, 48, 55
C4	26	33.5, 41.5	59	67	84.5	114.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230
C6	M3	M4, M5	M6	M8	M10	M10
C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	182, 200 220, 250, 265
C8	37.5	41, 49	67.5, 82	79, 89	98.5	132.5
C9	139.5	172.5, 180.5	241	298.5	358.5	446.5

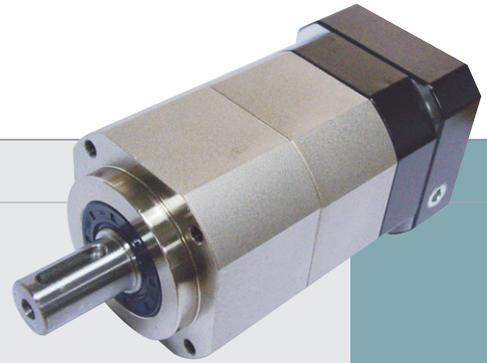


High Precision Planetary Reducer

■ Mass Moments of Inertia (kg · cm²)

Ratio	62	90	120	142	180	220
15	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.14	0.43	2.39	6.72	21.83
90	0.03	0.14	0.40	2.39	6.72	21.60
100	0.03	0.14	0.40	2.39	6.72	21.60

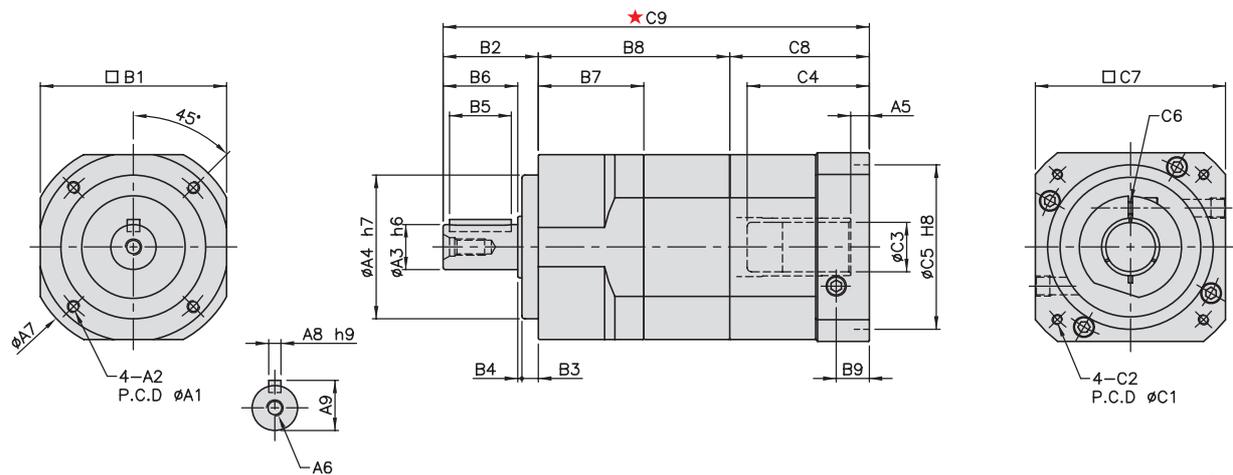
Model No.	Unit	Ratio	62	90	120	142	180	220
Rated Output Torque	Nm	15	59	165	335	625	1206	2030
		20	51	146	300	555	1069	1804
		25	48	160	333	618	1189	2010
		30	45	151	311	583	1118	1911
		35	45	149	309	573	1108	1870
		40	43	143	298	553	1070	1824
		50	48	160	333	618	1189	2010
		60	45	151	311	583	1118	1911
		70	45	149	309	573	1108	1870
		80	43	143	298	553	1070	1824
		90	44	145	278	516	993	1694
100	43	141	294	549	1059	1779		
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque					
Rated Input Speed	rpm	15~100	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	15~100	10,000	8,000	8,000	6,000	6,000	4,000
Backlash P5	arc min	15~100			≤3	≤3	≤3	≤3
Backlash P0	arc min	15~100	≤5	≤5	≤5	≤5	≤5	≤5
Backlash P1	arc min	15~100	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arc min	15~100	6	14	27	60	140	240
Max. Radial Load	N	15~100	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	15~100	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	15~100	10,000 (4,000 / Continuous Operation)					
Efficiency	%	15~100	≥94%					
Operating Temperature	°C	15~100	-25°C ~ +90°C					
Lubrication		15~100	VIGO GREASE RE #0					
Degree of Gearbox Protection		15~100	IP65					
Mounting Position		15~100	Any					
Noise Level	dB	15~100	≤58	≤60	≤63	≤65	≤67	≤70
Weight ±3%	Kg	15~100	1.62	4.3	8.8	19.5	38.1	53.6



MODEL : KSE-A

Double Reduction

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit:mm

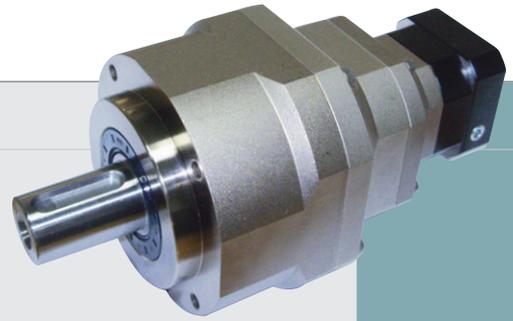
Model code	44A	62A	90A	120A	142A	180A	220A	
A	A1	44	62	82	110	140	184	218
	A2	M4×P0.7	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M12×P1.75	M16×P2.0
	A3	13	16	22	32	40	55	75
	A4	35	50	70	90	120	160	180
	A5	5	6	9, 23.5	10, 20	10	11.5	12.5
	A6	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
	A7	50	70	102	134	166	215	252
	A8	5	5	6	10	12	16	20
	A9	15	18	24.5	35	43	59	79.5
B	B1	44	62	90	120	142	180	220
	B2	26	36	46	65	92	106	139
	B3	5	7	8	12	15	20	30
	B4	1	1	2	3	3	4	5
	B5	15	20	30	40	65	70	90
	B6	20	28	36	50	74	82	104
	B7	31.5	38	51	61	70	85	93
	B8	57.5	71.8	94.5	117	136.5	166	186
	B9	9	11.5	16, 30.5	19.5, 27.5	20	23.5	23.5
C	C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265, 300	215, 235 265, 300
	C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12	M12, M16	M12, M16
	C3	5, 6.35, 8, (11)	6.35, 8, 11 12, 14, (16, 19)	14, 16, 19 (22, 24)	19, 22, 24 28, (32)	22, 24, 28 32, 35, (38)	38, 42 48, 55	42, 48, 55
	C4	26	33.5, 41.5	59	67	84.5	114.5	117.5
	C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230	180, 200 230, 250
	C6	M3	M4	M6	M8	M10	M10	M10
	C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	182, 200 220, 250, 265	220, 250, 265
	C8	37.5	41, 49	67.5	79, 89	98.5	132.5	135.5
	C9	121	148.8, 156.8	208	261	327	404.5	460.5

High Precision Planetary Reducer

■ Mass Moments of Inertia (kg · cm²)

Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.03	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.03	0.14	0.43	2.39	6.72	21.83
90	0.03	0.03	0.14	0.40	2.39	6.72	21.60
100	0.03	0.03	0.14	0.40	2.39	6.72	21.60

Model No.	Unit	Ratio	44A	62A	90A	120A	142A	180A	220A
Rated Output Torque	Nm	15	19	59	165	335	625	1206	2030
		20	16	51	146	300	555	1069	1804
		25	16	48	160	333	618	1189	2010
		30	15	45	151	311	583	1118	1911
		35	15	45	149	309	573	1108	1870
		40	14	43	143	298	553	1070	1824
		50	16	48	160	333	618	1189	2010
		60	15	45	151	311	583	1118	1911
		70	15	45	149	309	573	1108	1870
		80	14	43	143	298	553	1070	1824
		90	13	44	145	278	516	993	1694
100	14	43	141	294	549	1059	1779		
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque						
Rated Input Speed	rpm	15~100	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	15~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Backlash PS	arc min	15~100	≤4	≤4	≤4	≤4	≤4	≤4	≤4
Backlash P0	arc min	15~100	≤8	≤8	≤8	≤8	≤8	≤8	≤8
Backlash P1	arc min	15~100	≤12	≤12	≤12	≤12	≤12	≤12	≤12
Torsional Rigidity	Nm/arc min	15~100	3	6	14	27	60	140	240
Max. Radial Load	N	15~100	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	15~100	190	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	15~100	10,000 (4,000 / Continuous Operation)						
Efficiency	%	15~100	≥94%						
Operating Temperature	°C	15~100	-25°C ~ +90°C						
Lubrication		15~100	VIGO GREASE RE #0						
Degree of Gearbox Protection		15~100	IP65						
Mounting Position		15~100	Any						
Noise Level	dB	15~100	≤56	≤58	≤60	≤63	≤65	≤67	≤70
Weight ±3%	Kg	15~100	0.7	1.8	5.1	11.8	21.5	41.3	56.8

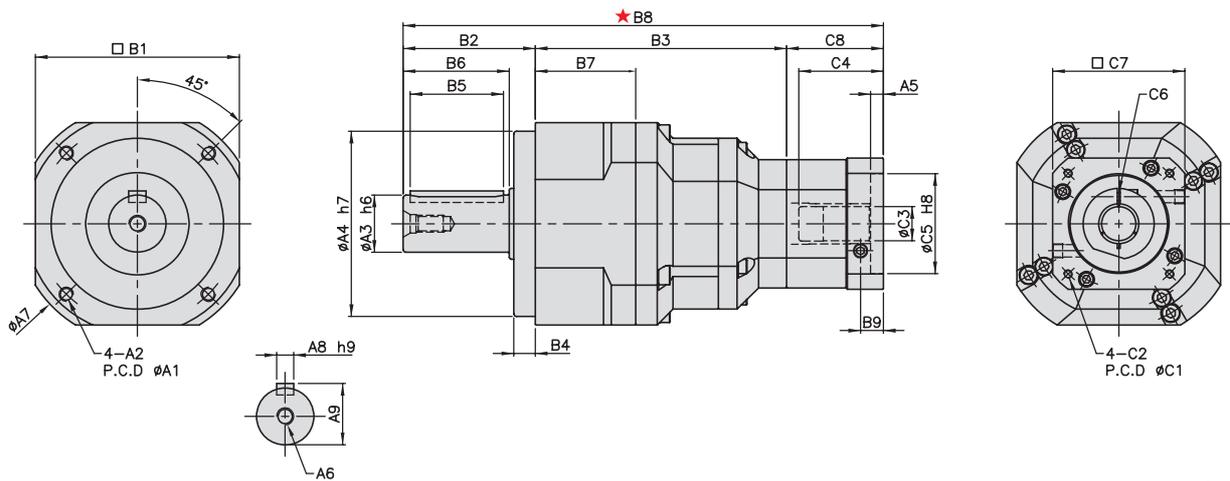


MODEL : KSE

Triple Reduction

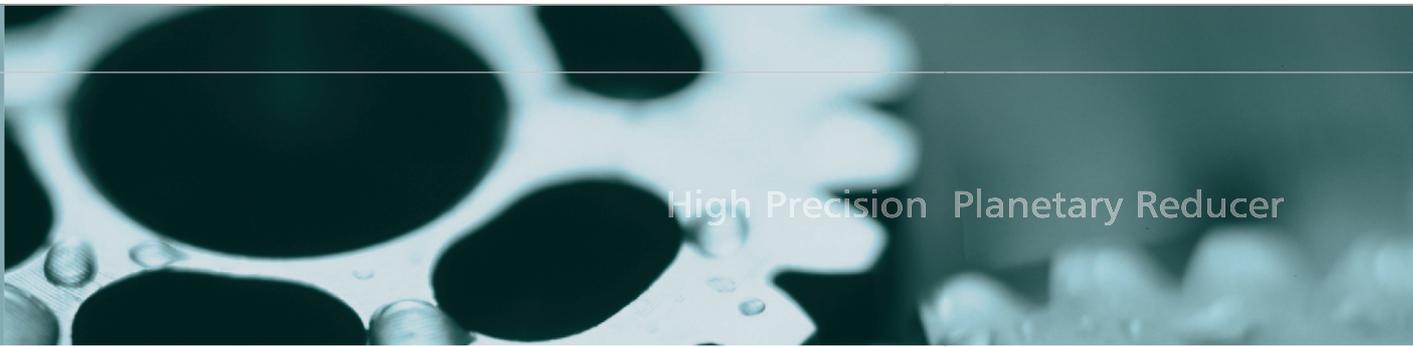
RATIO : 125.150.175.200.250.300.350.

400.450.500.600.700.800.900.1000



unit:mm

Model code	90	120	142	180	220
A					
A1	82	110	140	184	218
A2	M6×P1.0	M8×P1.25	M10×P1.5	M12×P1.75	M16×P2.0
A3	22	32	40	55	75
A4	70	90	120	160	180
A5	5	6	9	10	10
A6	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
A7	102	134	166	215	252
A8	6	10	12	16	20
A9	24.5	35	43	59	79.5
B					
B1	90	120	142	180	220
B2	46	65	92	106	139
B3	113.5	143	175	211.5	244
B4	8	12	15	20	30
B5	30	40	65	70	90
B6	36	50	74	82	104
B7	51	61	70	85	93
B8	197	249, 257	334.5	396.5	481.5
B9	9	11.5	16, 30.5	19.5, 27.5	20
C					
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12
C3	5, 6.35, 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24, 28 32, 35,(38)
C4	26	33.5, 41.5	59	67	84.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180
C6	M3	M4, M5	M6	M8	M10
C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190
C8	37.5	41, 49	67.5	79	98.5



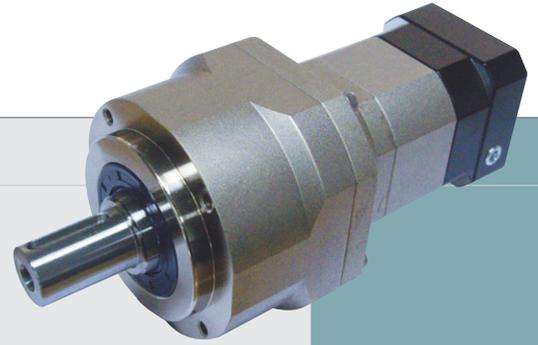
High Precision Planetary Reducer

■ Mass Moments of Inertia (Kg · cm²)

Ratio	90	120	142	180	220
125	0.01	0.04	0.71	1.42	3.29
150	0.01	0.04	0.51	0.92	2.15
175	0.01	0.04	0.40	0.83	1.26
200	0.01	0.04	0.21	0.65	0.98
250	0.01	0.04	0.11	0.52	0.82
300	0.01	0.04	0.09	0.21	0.82
350	0.01	0.04	0.09	0.21	0.82
400	0.01	0.04	0.09	0.21	0.82
450	0.01	0.04	0.09	0.21	0.51
500	0.01	0.04	0.08	0.12	0.51
600	0.01	0.04	0.08	0.12	0.25
700	0.01	0.04	0.08	0.12	0.25
800	0.01	0.04	0.08	0.12	0.25
900	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.04	0.08	0.12	0.25

Model No.	Unit	Ratio	90	120	142	180	220
Rated Output Torque	Nm	125	160	333	618	1189	2010
		150	165	335	625	1206	2030
		175	149	309	573	1108	1870
		200	146	300	555	1069	1804
		250	160	333	618	1189	2010
		300	151	311	583	1118	1911
		350	149	309	573	1108	1870
		400	143	298	553	1070	1824
		450	145	278	516	993	1694
		500	160	333	618	1189	2010
		600	151	311	583	1118	1911
		700	149	309	573	1108	1870
Max. Output Torque	Nm	125~1000	3 Times of Rated Output Torque				
Rated Input Speed	rpm	125~1000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	125~1000	8,000	8,000	6,000	6,000	4,000
Backlash PS	arc min	125~1000		≤5	≤5	≤5	≤5
Backlash P0	arc min	125~1000	≤7	≤7	≤7	≤7	≤7
Backlash P1	arc min	125~1000	≤9	≤9	≤9	≤9	≤9
Torsional Rigidity	Nm/arc min	125~1000	14	27	60	140	240
Max. Radial Load	N	125~1000	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	125~1000	1,600	3,400	4,650	7,800	25,500
Service Life	hr	125~1000	10,000 (4,000 / Continuous Operation)				
Efficiency	%	125~1000	≥ 90%				
Operating Temperature	°C	125~1000	-25°C ~ +90°C				
Lubrication		125~1000	VIGO GREASE RE #0				
Degree of Gearbox Protection		125~1000	IP65				
Mounting Position		125~1000	Any				
Noise Level	dB	125~1000	≤60	≤63	≤65	≤67	≤70
Weight ±3%	Kg	125~1000	5.2	12.4	24.5	49.3	78.1

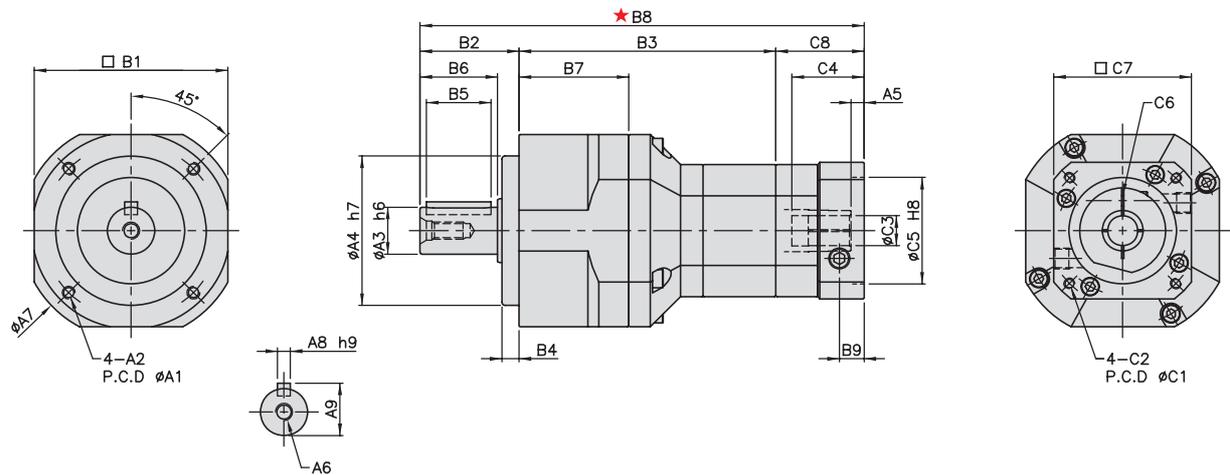
* 연속운전 사용시 본사와 상담후 선정바랍니다.



MODEL : KSE-A

Triple Reduction

RATIO : 125.150.175.200.250.300.350.
400.450.500.600.700.800.900.1000



unit:mm

Model code	62A	90A	120A	142A	180A	220A
A						
A1	62	82	110	140	184	218
A2	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M12×P1.75	M16×P2.0
A3	16	22	32	40	55	75
A4	50	70	90	120	160	180
A5	5	6.5	9, 23.5	10, 20	10	11.5
A6	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0
A7	70	102	134	166	215	252
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B						
B1	62	90	120	142	180	220
B2	36	46	65	92	106	139
B3	92	119.5	152	183.5	220.5	256
B4	7	8	12	15	20	30
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	38	51	61	70	85	93
B8	165.5	206.5, 214.5	284.5	354.5	425	527.5
B9	9	11.5	16, 30.5	19.5	20	23.5
C						
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265, 300
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M12	M12, M16
C3	5, 6.35, 8,(11)	6.35, 8, 11 12, 14,(16, 19)	14, 16 19,(22, 24)	19, 22, 24, 28 (32), 32, 35,(38)	22, 24, 28	38, 42, 48, 55
C4	26	33.5, 41.5	59	67	84.5	114.5
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230
C6	M3	M4, M5	M6	M8	M10	M10
C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	182, 200 220, 250, 265
C8	37.5	41, 49	67.5	79	98.5	132.5



High Precision Planetary Reducer

■ Mass Moments of Inertia (Kg · cm²)

Ratio	62A	90A	120A	142A	180A	220A
125	0.01	0.01	0.04	0.71	1.42	3.29
150	0.01	0.01	0.04	0.51	0.92	2.15
175	0.01	0.01	0.04	0.40	0.83	1.26
200	0.01	0.01	0.04	0.21	0.65	0.98
250	0.01	0.01	0.04	0.11	0.52	0.82
300	0.01	0.01	0.04	0.09	0.21	0.82
350	0.01	0.01	0.04	0.09	0.21	0.82
400	0.01	0.01	0.04	0.09	0.21	0.82
450	0.01	0.01	0.04	0.09	0.21	0.51
500	0.01	0.01	0.04	0.08	0.12	0.51
600	0.01	0.01	0.04	0.08	0.12	0.25
700	0.01	0.01	0.04	0.08	0.12	0.25
800	0.01	0.01	0.04	0.08	0.12	0.25
900	0.01	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.01	0.04	0.08	0.12	0.25

Model No.	Unit	Ratio	62A	90A	120A	142A	180A	220A
Rated Output Torque	Nm	125	48	160	333	618	1189	2010
		150	59	165	335	625	1206	2030
		175	45	149	309	573	1108	1870
		200	51	146	300	555	1069	1804
		250	48	160	333	618	1189	2010
		300	45	151	311	583	1118	1911
		350	45	149	309	573	1108	1870
		400	43	143	298	553	1070	1824
		450	44	145	278	516	993	1694
		500	48	160	333	618	1189	2010
		600	45	151	311	583	1118	1911
		700	45	149	309	573	1108	1870
Max. Output Torque	Nm	125~1000	3 Times of Rated Output Torque					
Rated Input Speed	rpm	125~1000	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed	rpm	125~1000	10,000	8,000	8,000	6,000	6,000	4,000
Backlash PS	arc min	125~1000			≤5	≤5	≤5	≤5
Backlash P0	arc min	125~1000	≤7	≤7	≤7	≤7	≤7	≤7
Backlash P1	arc min	125~1000	≤9	≤9	≤9	≤9	≤9	≤9
Torsional Rigidity	Nm/arc min	125~1000	6	14	27	60	140	240
Max. Radial Load	N	125~1000	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Load	N	125~1000	590	1,600	3,400	4,650	7,800	25,500
Service Life	hr	125~1000	10,000 (4,000 / Continuous Operation)					
Efficiency	%	125~1000	≥90%					
Operating Temperature	°C	125~1000	-25°C ~ +90°C					
Lubrication		125~1000	VIGO GREASE RE #0					
Degree of Gearbox Protection		125~1000	IP65					
Mounting Position		125~1000	Any					
Noise Level	dB	125~1000	≤58	≤60	≤63	≤65	≤67	≤70
Weight ±3%	Kg	125~1000	1.91	5.3	12.5	25	51.5	81.2

* 연속운전 사용시 본사와 상담후 선정바랍니다.



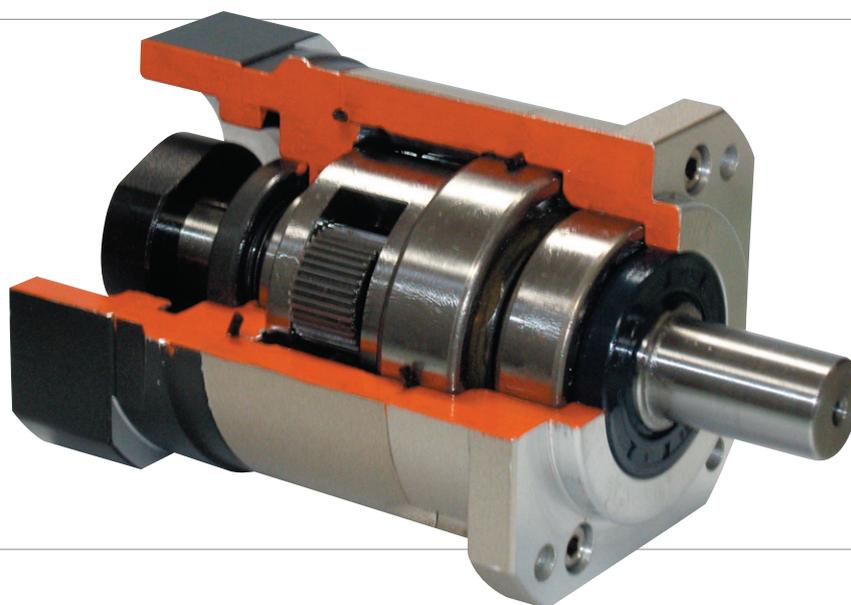
KFB Series

Single Stage Backlash \cong 8 arc/min

Double Stage Backlash \cong 12 arc/min

Indication of Model Numbers

KFB	-	90	-	10	-	MOTOR
TYPE KFB KFE		MODEL 50 70 90 120 145 180		RATIO SINGLE STAGE 3, 4, 5, 7,10 DOUBLE STAGE 15, 20, 25, 30, 35, 40, 50, 70, 100		MOTOR TYPE MOTOR BRAND & MODEL NO.





Integrated planetary arm bracket

Planetary arm bracket와 출력 Shaft는 일체형 구조로 한번에 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.



Full needle bearings design

ATG 감속기의 유성기어는 구조적 강도와 출력 향상을 위하여 Full needle bearing을 적용하였습니다.

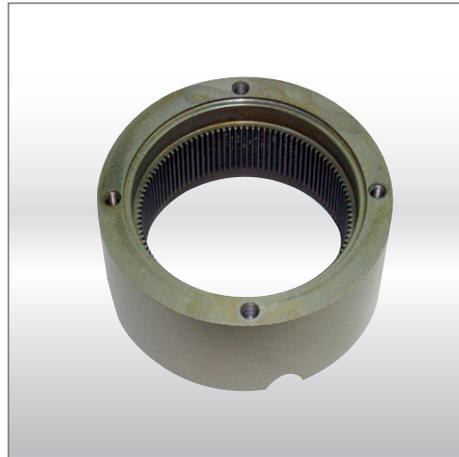
The planetary gear transmission employs full needle bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and output torque.



High precision gear machining

감속기 내부의 유성 기어와 선 기어는 기어 제작 용도의 크롬 몰리브덴 합금강으로 제조 되었습니다. 기어의 강도는 57~60 HRC이며 정밀도 향상을 위해 열처리후 스카이빙 연마 공정을 적용하여 DIN 6 class(JIS 2급) 이내의 등급을 유지합니다.

The planetary gear and sun gear are manufactured from high quality Cr-Mo alloy steel(SNCM415), precision machined and carburized to hardness 57-60 HRC. Precision teeth grinding or Skiving assures gear accuracy reaches DIN6 class.



One-piece gearbox body

감속기 케이스에 내치기어를 정밀 가공하여 견고함과 정밀도를 향상 하였습니다.

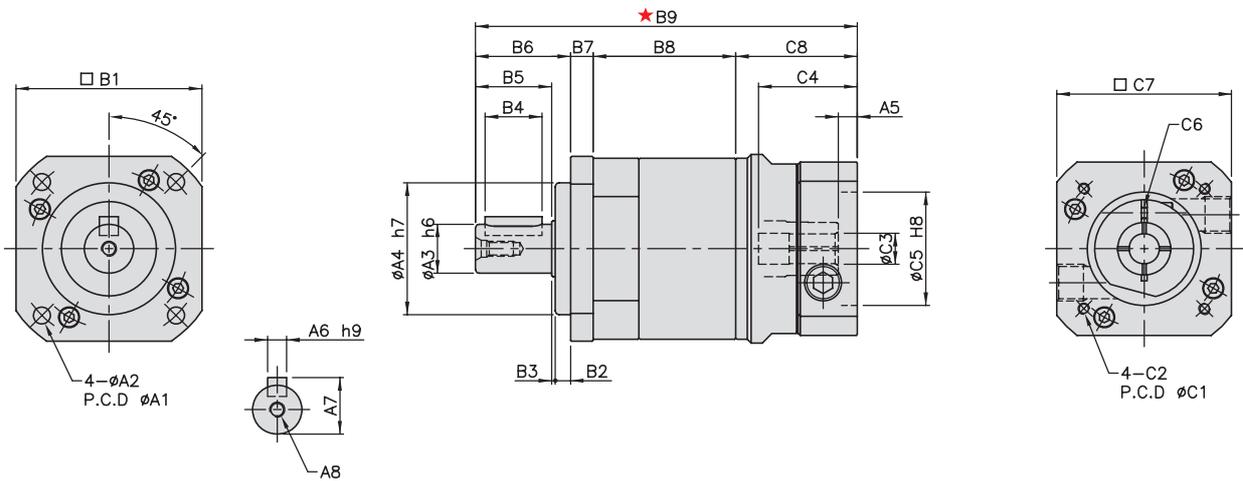
The gearbox and internal ring are one-piece constructed. High gear accuracy meets DIN6 class standard.



MODEL : KFB

Single Reduction

RATIO : 3.4.5.7.10



unit:mm

Model code	50	70	90	120	145	180	
A	A1	50	70	100	130	215	
	A2	4.5	6	6.8	9	11	
	A3	13	16	22	32	40	
	A4	35	50	80	110	130	
	A5	5	6	9	10	10	
	A6	5	5	6	10	12	
	A7	15	18	24.5	35	43	
	A8	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0
B	B1	50	70	90	120	145	
	B2	4	5	6	8	10	
	B3	1	1	2	2	3	
	B4	15	20	30	40	65	
	B5	20	28	36	50	74	
	B6	25	34	44	60	87	
	B7	6	8	9	12	15	
	B8	37.5	49.5	59	86	95	
	B9	100.5	132.5	170.5, 185	227.5, 237.5	291	325
C	C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265
	C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M10, M12	M12
	C3	5, 6.35, 8	6.35, 8 11, 12, 14	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24 28, 32, 35	38, 42, 48
	C4	26	33.5	51, 65.5	63, 73	81.5	115
	C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230
	C6	M3	M4, M5	M6	M8	M10	M10
	C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	180, 200 220, 250
	C8	32	41	58.5, 73	69.5, 79.5	94	133.5

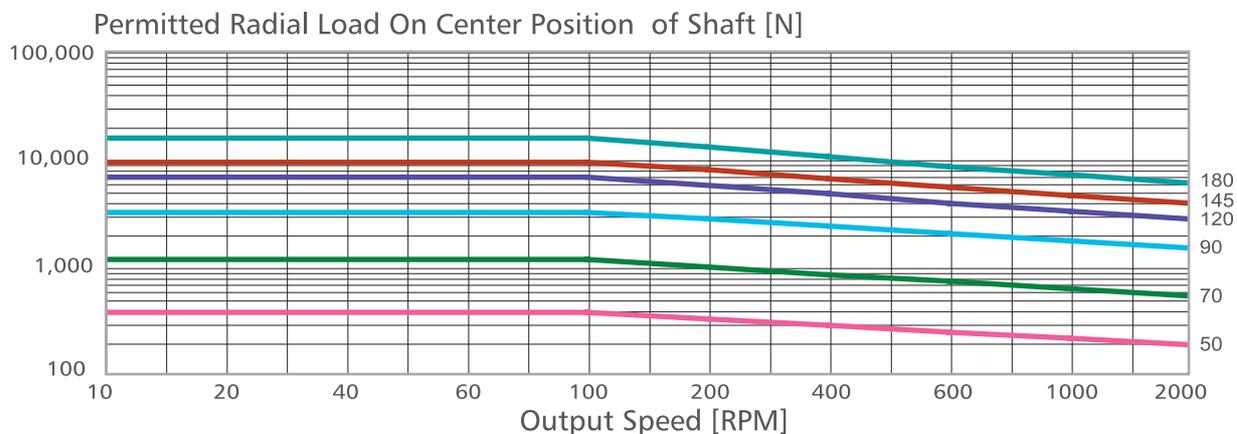


Model No.	Unit	Ratio	50	70	90	120	145	180
Rated Output Torque	Nm	3	17	50	125	268	482	940
		4	15	45	111	238	426	860
		5	14	42	104	223	401	835
		7	13	39	98	208	373	790
		10	12	37	92	198	356	760
Max. Output Torque	Nm	3~10	3 Times of Rated Output Torque					
Rated Input Speed	rpm	3~10	5,000	4,800	4,000	3,600	3,000	3,000
Max. Input Speed	Nm	3~10	8,000	6,000	6,000	4,800	3,600	3,600
Backlash	arc min	3~10	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
Torsional Rigidity	Nm/arc min	3~10	2.3	5	15	45	69	140
Max. Radial Force	N	3~10	750	1,180	3,000	6,500	9,100	11,150
Max. Axial Force	N	3~10	325	590	1,500	3,250	4,550	5,575
Service Life	hr	3~10	10,000 (Continuous Operation 4,000 hrs)					
Efficiency	%	3~10	≥ 97%					
Operating Temperature	°C	3~10	-25°C ~ +90°C					
Lubrication		3~10	VIGO GREASE RE#0					
Degree of Gearbox Protection		3~10	IP65					
Mounting Position		3~10	Any					
Noise Level	dB	3~10	≤ 62	≤ 62	≤ 65	≤ 68	≤ 70	≤ 70
Weight ±3%	Kg	3~10	0.63	1.57	3.22	8	16	33

KFB

■ Mass Moments of Inertia (kg · cm²)

Ratio	50	70	90	120	145	180
3	0.03	0.15	0.57	2.99	8.84	28.50
4	0.03	0.13	0.45	2.52	7.23	23.19
5	0.03	0.12	0.44	2.49	7.12	22.81
7	0.03	0.12	0.42	2.41	6.85	22.01
10	0.03	0.12	0.41	2.36	6.74	22.03



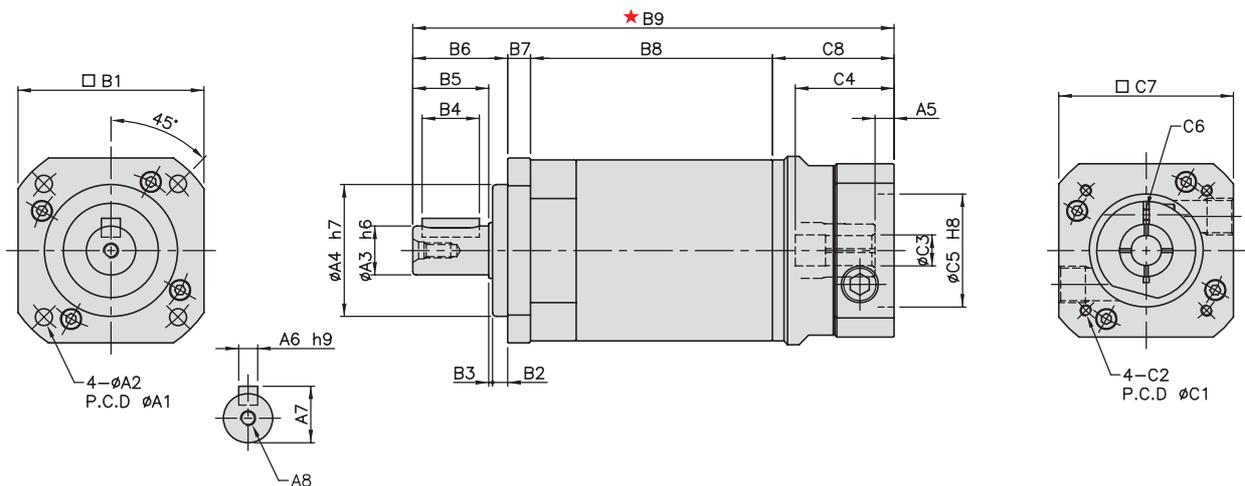
* 연속운전 사용시 본사와 상담후 선정바랍니다.



MODEL : KFB

Double Reduction

RATIO : 15.20.25.30.35.40.50.70.100



unit:mm

Model code	50	70	90	120	145	180
A						
A1	50	70	100	130	165	215
A2	4.5	6	6.8	9	11	13
A3	13	16	22	32	40	55
A4	35	50	80	110	130	160
A5	5	6	9	10	10	13
A6	5	5	6	10	12	16
A7	15	18	24.5	35	43	59
A8	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0
B						
B1	50	70	90	120	145	180
B2	4	5	6	8	10	20
B3	1	1	2	2	3	4
B4	15	20	30	40	65	70
B5	20	28	36	50	74	82
B6	25	34	44	60	87	106
B7	6	8	9	12	15	16
B8	63.7	83.5	98.7	140	158.7	139
B9	126.7	166.5	210.2, 224.7	281.5, 291.5	354.7	394.5
C						
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M10, M12	M12
C3	5, 6.35, 8	6.35, 8 11, 12, 14	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24 28, 32, 35	38, 42, 48
C4	26	33.5	51, 65.5	63, 73	81.5	115
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230
C6	M3	M4, M5	M6	M8	M10	M10
C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	180, 200 220, 250
C8	32	41	58.5, 73	69.5, 79.5	94	133.5



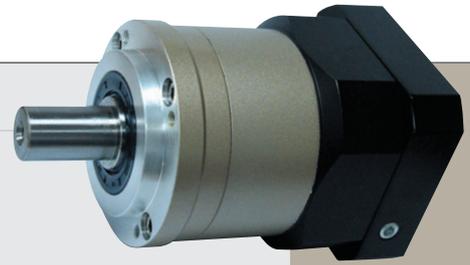
High Precision Planetary Reducer

Model No.	Unit	Ratio	50	70	90	120	145	180
Rated Output Torque	Nm	15	17	50	125	268	482	940
		20	15	45	111	238	426	860
		25	14	42	104	223	401	835
		30	17	50	125	268	482	940
		35	13	39	98	208	373	790
		40	15	45	111	238	427	860
		50	14	42	104	223	402	835
		70	13	40	98	208	373	790
	100	12	37	92	198	357	760	
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque					
Rated Input Speed	rpm	15~100	5,000	4,800	4,000	3,600	3,000	3,000
Max. Input Speed	Nm	15~100	8,000	6,000	6,000	4,800	3,600	3,600
Backlash	arc min	15~100	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
Torsional Rigidity	Nm/arc min	15~100	2.3	5	15	45	69	140
Max. Radial Force	N	15~100	750	1,180	3,000	6,500	9,100	11,150
Max. Axial Force	N	15~100	325	590	1,500	3,250	4,550	5,575
Service Life	hr	15~100	10,000 (Continuous Operation 4,000 hrs)					
Efficiency	%	15~100	≥ 94					
Operating Temperature	°C	15~100	-25°C ~ +90°C					
Lubrication		15~100	VIGO GREASE RE#0					
Degree of Gearbox Protection		15~100	IP65					
Mounting Position		15~100	Any					
Noise Level	dB	15~100	≤ 65	≤ 65	≤ 68	≤ 70	≤ 72	≤ 72
Weight ± 3%	Kg	15~100	0.9	2.24	4.59	11.22	22.5	37

KFB

■ Mass Moments of Inertia (kg · cm²)

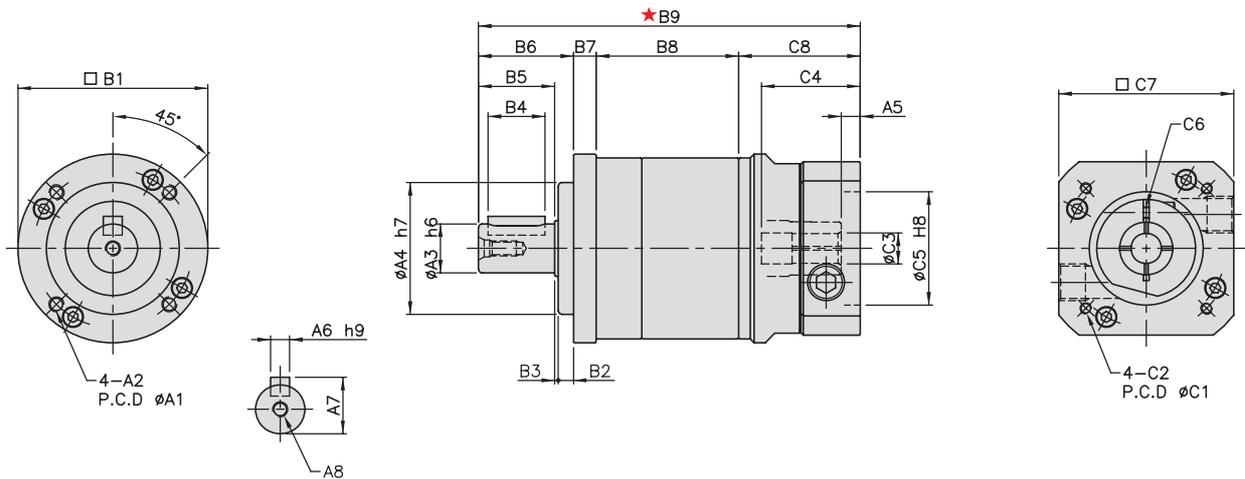
Ratio	50	70	90	120	145	180
15	0.03	0.03	0.13	0.42	2.52	7.14
20	0.03	0.03	0.13	0.42	2.52	7.14
25	0.03	0.03	0.13	0.42	2.52	6.94
30	0.03	0.03	0.13	0.42	2.33	6.94
35	0.03	0.03	0.13	0.40	2.33	6.94
40	0.03	0.03	0.13	0.40	2.33	6.76
50	0.03	0.03	0.13	0.40	2.33	6.76
70	0.03	0.03	0.13	0.39	2.29	6.56
100	0.03	0.03	0.13	0.36	2.29	6.56



MODEL : KFE

Single Reduction

RATIO : 3.4.5.7.10



unit:mm

Model code	50	70	90	120	145	180
A						
A1	42	60	80	105	130	184
A2	M4×P0.7	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M12×P1.75
A3	13	16	22	32	40	55
A4	35	50	70	90	110	160
A5	5	6	9	10	10	13
A6	5	5	6	10	12	16
A7	15	18	24.5	35	43	59
A8	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0
B						
B1	50	70	93	122	148	205
B2	4	5	6	8	10	20
B3	1	1	2	2	3	4
B4	15	20	30	40	65	70
B5	20	28	36	50	74	82
B6	25	34	44	60	87	106
B7	6	8	9	12	15	21.5
B8	37.5	49.5	59	86	95	64
B9	100.5	132.5	170.5, 185	227.5, 237.5	291	325
C						
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M10, M12	M12
C3	5, 6.35, 8	6.35, 8 11, 12, 14	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24 28, 32, 35	38, 42, 48
C4	26	33.5	51, 65.5	63, 73	81.5	115
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230
C6	M3	M4, M5	M6	M8	M10	M10
C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	180, 200 220, 250
C8	32	41	58.5, 73	69.5, 79.5	94	133.5



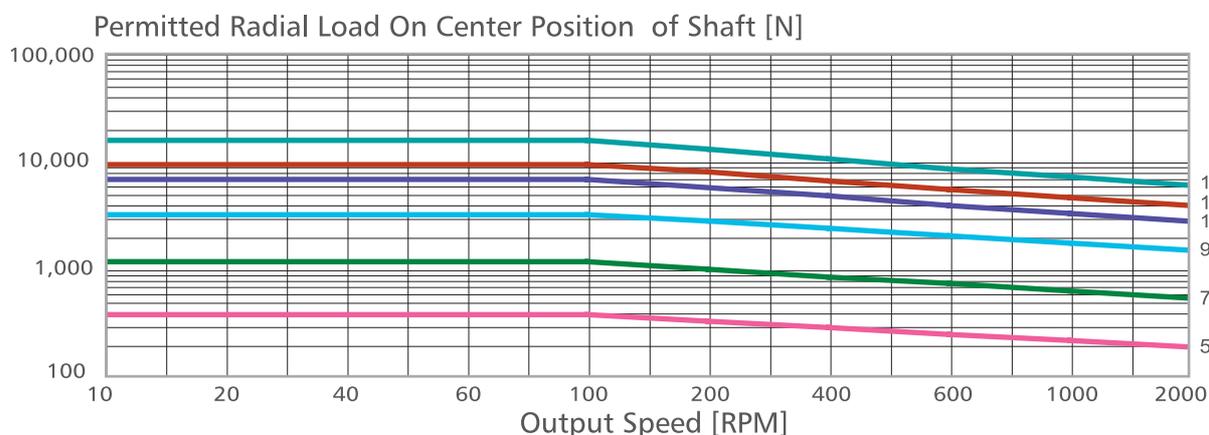
High Precision Planetary Reducer

Model No.	Unit	Ratio	50	70	90	120	145	180
Rated Output Torque	Nm	3	17	50	125	268	482	940
		4	15	45	111	238	426	860
		5	14	42	104	223	401	835
		7	13	39	98	208	373	790
		10	12	37	92	198	356	760
Max. Output Torque	Nm	3~10	3Times of Rated Output Torque					
Rated Input Speed	rpm	3~10	5,000	4,800	4,000	3,600	3,000	3,000
Max. Input Speed	Nm	3~10	8,000	6,000	6,000	4,800	3,600	3,600
Backlash	arc min	3~10	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
Torsional Rigidity	Nm/arc min	3~10	2.3	5	15	45	69	140
Max. Radial Force	N	3~10	750	1,180	3,000	6,500	9,100	11,150
Max. Axial Force	N	3~10	325	590	1,500	3,250	4,550	5,575
Service Life	hr	3~10	10,000 (Continuous Operation 4,000 hrs)					
Efficiency	%	3~10	≥ 97%					
Operating Temperature	°C	3~10	-25°C ~ +90°C					
Lubrication		3~10	VIGO GREASE RE#0					
Degree of Gearbox Protection		3~10	IP65					
Mounting Position		3~10	Any					
Noise Level	dB	3~10	≤ 62	≤ 62	≤ 65	≤ 68	≤ 70	≤ 70
Weight ±3%	Kg	3~10	0.63	1.57	3.22	8	16	32.5

KFE

■ Mass Moments of Inertia (kg · cm²)

Ratio	50	70	90	120	145	180
3	0.03	0.15	0.57	2.99	8.84	28.50
4	0.03	0.13	0.45	2.52	7.23	23.19
5	0.03	0.12	0.44	2.49	7.12	22.81
7	0.03	0.12	0.42	2.41	6.85	22.01
10	0.03	0.12	0.41	2.36	6.74	22.03

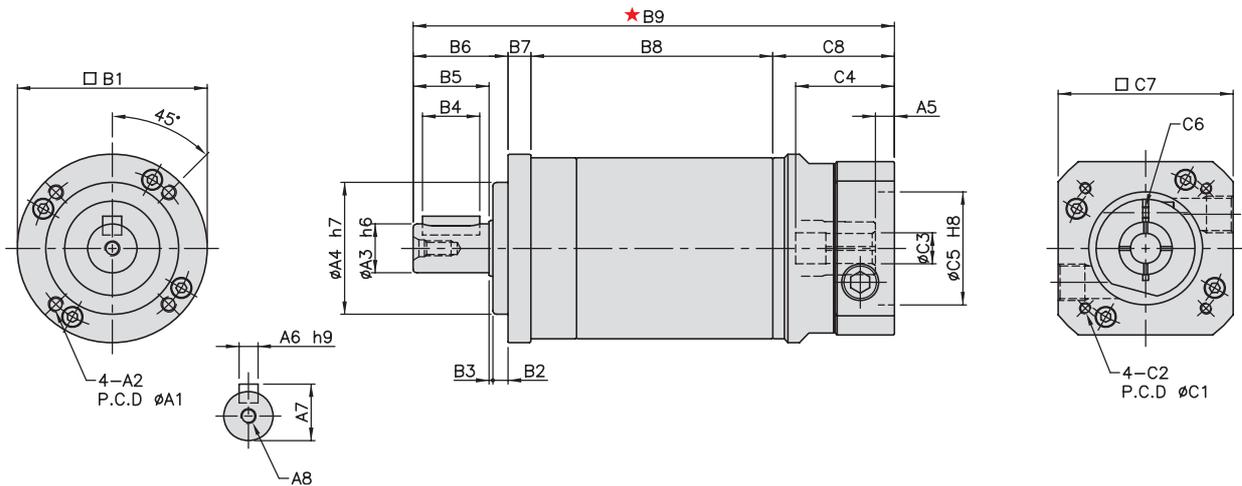




MODEL : KFE

Double Reduction

RATIO : 15.20.25.30.35.40.50.70.100



unit:mm

Model	50	70	90	120	145	180
A						
code						
A1	42	60	80	105	130	184
A2	M4×P0.7	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M12×P1.75
A3	13	16	22	32	40	55
A4	35	50	70	90	110	160
A5	5	6	9	10	10	13
A6	5	5	6	10	12	16
A7	15	18	24.5	35	43	59
A8	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0
B						
B1	50	70	93	122	148	205
B2	4	5	6	8	10	20
B3	1	1	2	2	3	4
B4	15	20	30	40	65	70
B5	20	28	36	50	74	82
B6	25	34	44	60	87	106
B7	6	8	9	12	15	21.5
B8	63.7	83.5	98.7	140	158.7	133.5
B9	126.7	166.5	210.2, 224.7	281.5, 291.5	354.7	394.5
C						
C1	46, 60, 63, 70	46, 70, 75, 90	70, 90, 100 115, 145, 165	90, 100 115, 145, 165	145, 165 200, 215	200, 215 235, 265
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10	M8, M10, M12	M12
C3	5, 6.35, 8	6.35, 8 11, 12, 14	14, 16 19,(22, 24)	19, 22 24, 28,(32)	22, 24 28, 32, 35	38, 42, 48
C4	26	33.5	51, 65.5	63, 73	81.5	115
C5	30, 40, 50	50, 60, 70	50, 70, 80 95, 110, 130	70, 80 95, 110, 130	110, 114.3 130, 180	114.3, 180 200, 230
C6	M3	M4, M5	M6	M8	M10	M10
C7	46, 55, 60	64, 70, 80	92, 110 130, 142	130, 150	146, 150 180, 190	180, 200 220, 250
C8	32	41	58.5, 73	69.5, 79.5	94	133.5



High Precision Planetary Reducer

Model No.	Unit	Ratio	50	70	90	120	145	180
Rated Output Torque	Nm	15	17	50	125	268	482	940
		20	15	45	111	238	426	860
		25	14	42	104	223	401	835
		30	17	50	125	268	482	940
		35	13	39	98	208	373	790
		40	15	45	111	238	427	860
		50	14	42	104	223	402	835
		70	13	40	98	208	373	790
		100	12	37	92	198	357	760
Max. Output Torque	Nm	15~100	3 Times of Rated Output Torque					
Rated Input Speed	rpm	15~100	5,000	4,800	4,000	3,600	3,000	3,000
Max. Input Speed	Nm	15~100	8,000	6,000	6,000	4,800	3,600	3,600
Backlash	arc min	15~100	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
Torsional Rigidity	Nm/arc min	15~100	2.3	5	15	45	69	140
Max. Radial Force	N	15~100	750	1,180	3,000	6,500	9,100	11,150
Max. Axial Force	N	15~100	325	590	1,500	3,250	4,550	5,575
Service Life	hr	15~100	10,000 (Continuous Operation 4,000 hrs)					
Efficiency	%	15~100	≤ 94%					
Operating Temperature	°C	15~100	-25°C ~ +90°C					
Lubrication		15~100	VIGO GREASE RE#0					
Degree of Gearbox Protection		15~100	IP65					
Mounting Position		15~100	Any					
Noise Level	dB	15~100	≤ 65	≤ 65	≤ 68	≤ 70	≤ 72	≤ 72
Weight ±3%	Kg	15~100	0.9	2.24	4.59	11.22	22.5	36.5

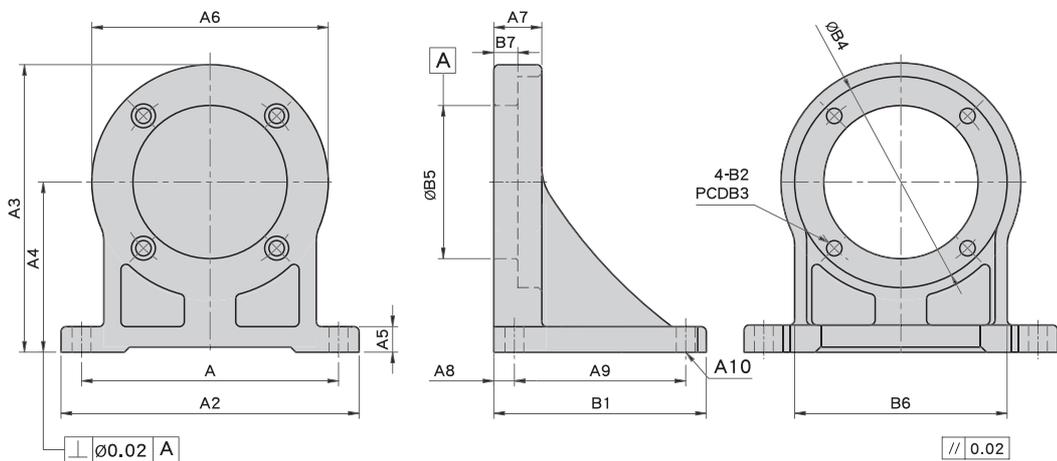
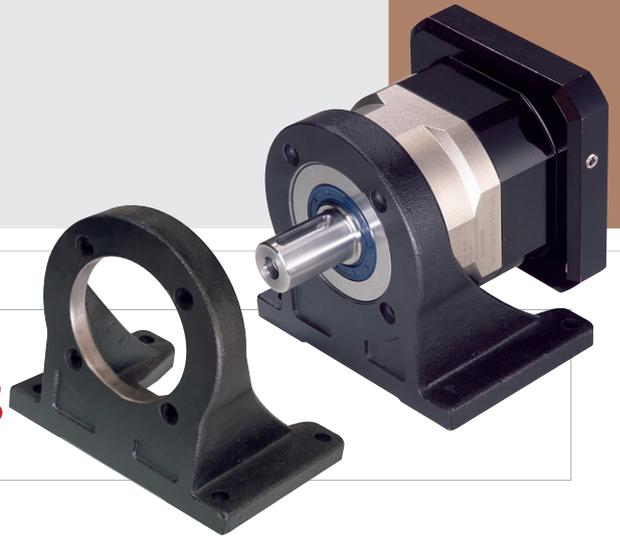
KFE

■ Mass Moments of Inertia (kg · cm²)

Ratio	50	70	90	120	145	180
15	0.03	0.03	0.13	0.42	2.52	7.14
20	0.03	0.03	0.13	0.42	2.52	7.14
25	0.03	0.03	0.13	0.42	2.52	6.94
30	0.03	0.03	0.13	0.42	2.33	6.94
35	0.03	0.03	0.13	0.40	2.33	6.94
40	0.03	0.03	0.13	0.40	2.33	6.76
50	0.03	0.03	0.13	0.40	2.33	6.76
70	0.03	0.03	0.13	0.39	2.29	6.56
100	0.03	0.03	0.13	0.36	2.29	6.56

ACCESSORIES

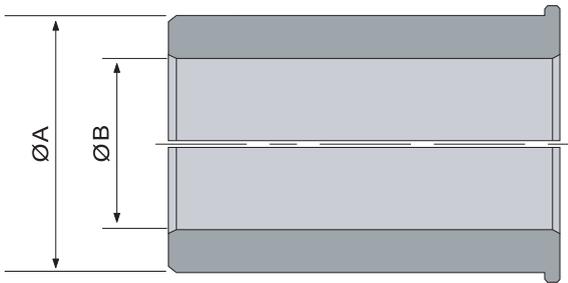
Foot Type Base Kits



unit:mm

Model Code	44	62	90	120	142	180	220
A	A1	70	90	110	150	190	280
	A2	88	108	130	176	220	330
	A3	75.5	95.5	127	170	207.5	334
	A4	45	55	75	100	120	200
	A5	8	9	11	16	19	30
	A6	60	81	104	140	175	228
	A7	13	16	21	28	35	60
	A8	10	10	11	14	16	26
	A9	40	50	75	100	120	200
	A10	4-Ø7	4-Ø7	4-Ø9	4-Ø11	4-Ø13	4-Ø17
B	B1	60	70	97	128	152	252
	B2	Ø4.5	Ø5.5	Ø6.8	Ø9	Ø11	Ø17
	B3	44	62	82	110	140	218
	B4	50	70	92	124	155	242
	B5	35	50	70	90	120	180
	B6	50	70	90	125	156	230
	B7	6	8	9	14	16	30
Kg		0.71	1.57	3.86	6.41	13.44	27.73

BUSHING



BUSH 조건표

기본 입력축 내 사용가능한
BUSH SIZE입니다.

BUSH ØB \ CONCATENATION ØA	8	11	14	19	24	28	35	38	42	48
5	●									
6	●									
6.35	●		●							
8		●	●							
9		●	●							
11			●							
12			●							
14				●	●					
16				●	●					
19					●	●				
22					●	●	●			
24						●	●			
28							●		●	
32							●	●		
35								●	●	
38									●	
42										●

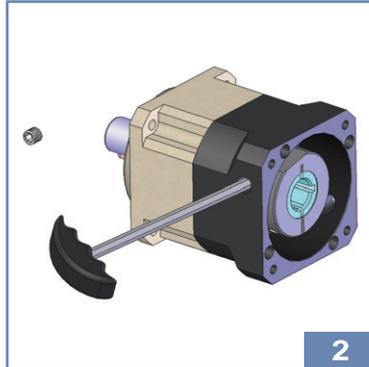
Planetary Gearbox and Motor Mounting Instructions



1

모터와 기어박스의 사이즈를 확인 후
마운팅 표면을 깨끗이 닦아 주세요.

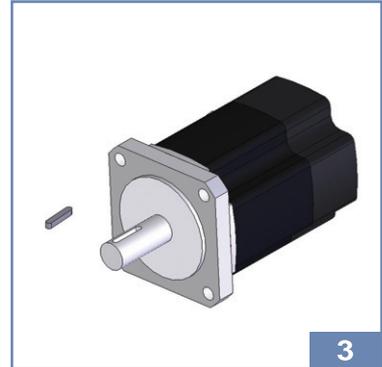
Confirm the motor and gearbox size .
Clean up the mounting surface.



2

아답터 플레이트의 스크류 플러그를 제거 하신
후 컬러의 볼트를 회전 시켜 주세요.

Remove the plug on the adapter plate.
Rotate the set collar till the bolt is line up.



3

키 타임이 아닌 감속기일 때는 모터의 키를
제거 합니다.

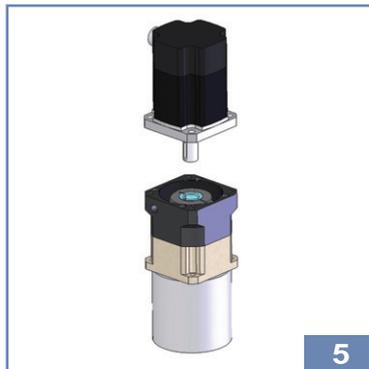
Remove the motor key if the diameter
of motor shaft under $\phi 32$.



4

모터의 사이즈를 체크하시고 필요 시에는
부싱을 삽입하세요.

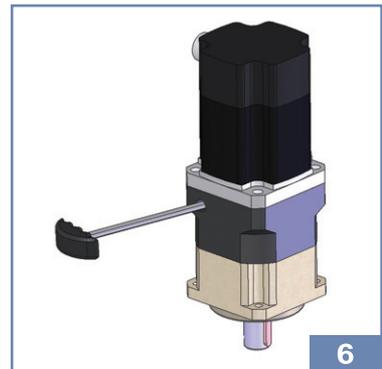
Check motor shaft size and insert
bushing into input bore if necessary.



5

모터와 기어 박스를 연결합니다.

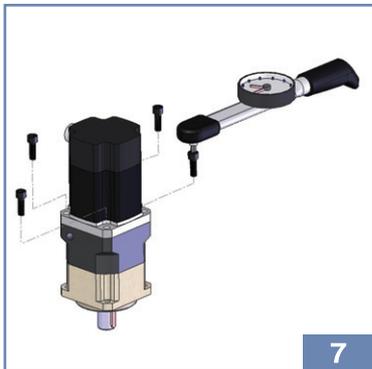
Put the motor into the gearbox vertically.



6

연결된 감속기의 스크류 볼트를 가볍게
조여 주세요.

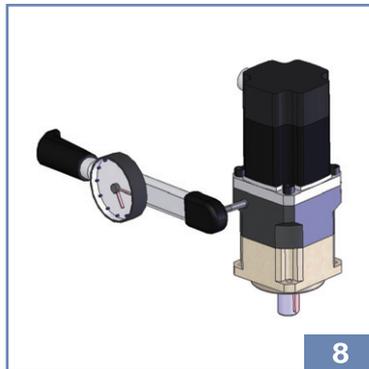
Adapted the motor. Tighten the set
collar bolt with light torque.



7

토크 렌치를 사용하여 마운팅 볼트를
조여 주세요.

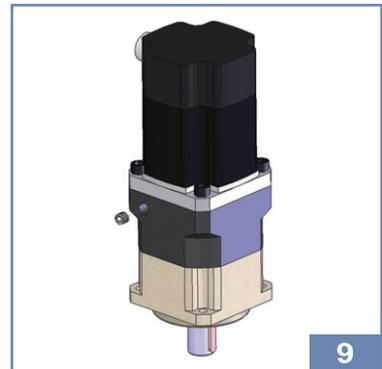
Tighten the mounting bolt in 1~4 order
with torque wrench.



8

토크 렌치를 사용하여 컬러 볼트를 조여
주세요.

Tighten the set collar bolt with torque
wrench.



9

스크류 플러그를 조여 주세요.

Tighten back the screw plug.

ATG Series Selection Table of Motor for Reference

KSB, KSE Single Reduction KSB-A, KSE-A Double Reduction

Model	44	62	90	120	142	180	220
	44A	62A	90A	120A	142A	180A	220A
Input Bore	5.65~11	6.35~19	14~24	19~32	22~38	38~55	42~55
Power							
100w	●	●					
200w	●	●					
400w		●	●				
750w			●	●			
1kw			●	●	●		
1.5kw			●	●	●		
2.2kw				●	●		
3.75kw				●	●		
5.5kw					●	●	
7.5kw					●	●	
11kw						●	●
15kw						●	●
22kw						●	●
30kw						●	●

KSB, KSE Double Reduction

Model	62	90	120	142	180	220
	Input Bore	5.65~11	6.35~19	14~24	19~32	22~38
Power						
100w	●					
200w	●					
400w	●	●				
750w		●	●			
1kw		●	●	●		
1.5kw		●	●	●		
2.2kw			●	●		
3.75kw			●	●		
5.5kw				●	●	
7.5kw				●	●	
11kw					●	●
15kw					●	●
22kw					●	●
30kw					●	●

KFB Series Selection Table of Motor for Reference

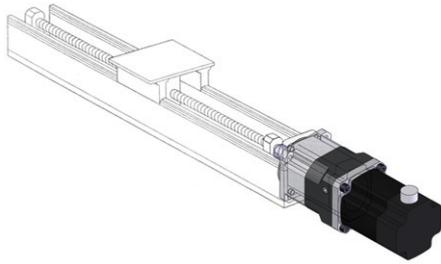
Model	50	70	90	120	145
	Input Bore	5.65~8	6.35~14	14~19	19~32
Power					
100w	●	●			
200w		●			
400w		●	●		
750w			●	●	
1kw				●	
1.5kw				●	●
2.2kw				●	●
3.75kw				●	●
5.5kw					●
7.5kw					
11kw					
15kw					
22kw					

The Table is for reference, Shall be selected based on rated output torque.

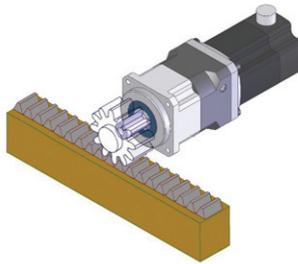
Applications

○ Linear Action

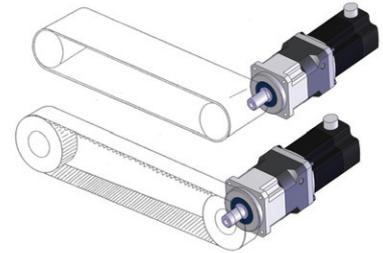
● Ball Screw



● Rack

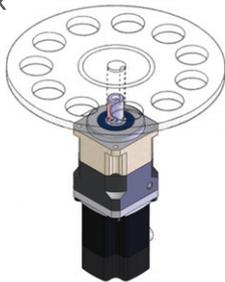


● Roller / Belt

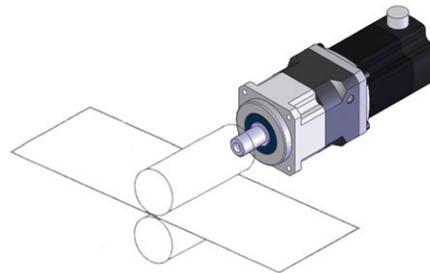


○ Rotary Action

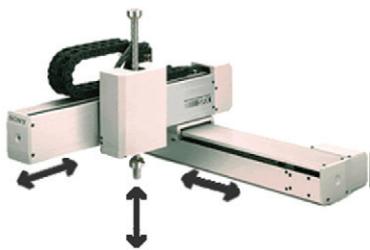
● Index



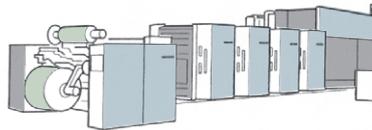
○ Others



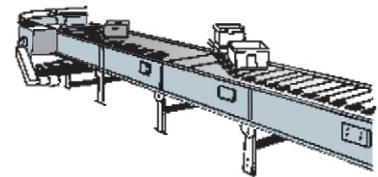
● Robot



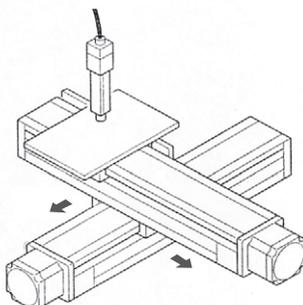
● Printing Machine



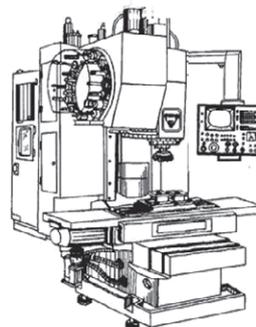
● Conveyor



● Working Table



● CNC Spindle



● Index

