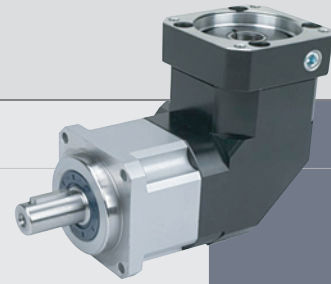
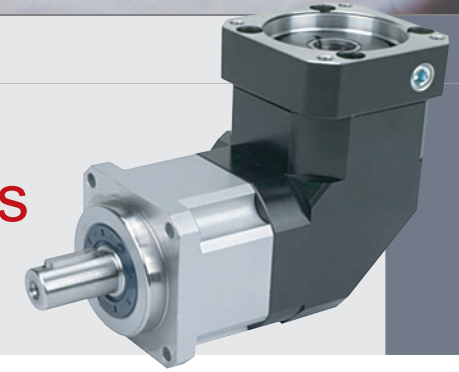


PBL-H Type (Standard Helical Gear Type)



Features of PBL Series (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)



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 Bracket와 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 accuracy 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.

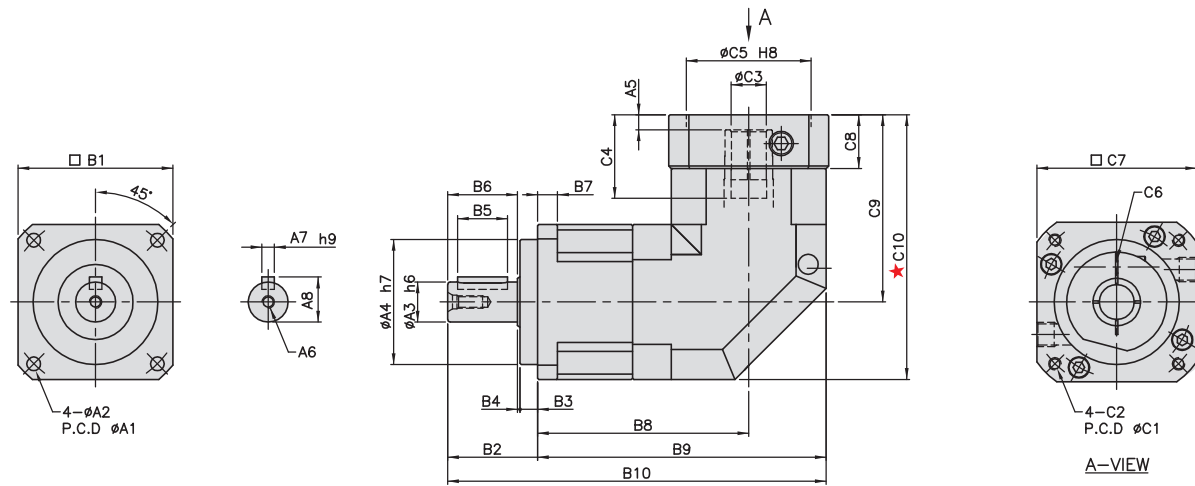
The input end and the motor is couple through a collet chuck locking mechanism, It is dynamically balanced to assure concentricity and balance on the connection when running at high speed. No backlash for transmission.





MODEL : PBL (44~142)-H
Single Reduction
RATIO : 3.4.5.6.7.8.9.10.12.14.16.18.20

High Precision Planetary Reducer



unit:mm

Model code	44	62	90	120	142
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
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	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
C1	46, 60, 63, 70	70, 75, 90	70, 90, 145	90, 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)	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, 130	110, 114.3, 130, 180
C6	M3	M5	M6	M8	M10
C7	46, 55, 60	64, 70, 80	92, 110, 130	130, 150	146, 150, 180, 190
C8	16	21.5	26.5, 41	35.5, 45.5	35.5
C9	61	77	115.3, 129.8	141, 151	174
C10	83	108	160.3, 174.8	201, 211	245

■ Mass Moments of Inertia (kg · cm²)

Ratio	44	62	90	120	142
3	0.09	0.36	2.28	6.85	23.5
4	0.09	0.36	2.28	6.85	23.5
5	0.09	0.36	2.28	6.85	23.5
6	0.09	0.36	2.28	6.85	23.5
7	0.09	0.36	2.28	6.85	23.5
8	0.09	0.36	2.28	6.85	23.5
9	0.09	0.36	2.28	6.85	23.5
10	0.09	0.36	2.28	6.85	23.5
12	0.03	0.08	1.88	6.20	21.8
14	0.03	0.08	1.88	6.20	21.8
16	0.03	0.08	1.88	6.20	21.8
18	0.03	0.08	1.88	6.20	21.8
20	0.03	0.08	1.88	6.20	21.8

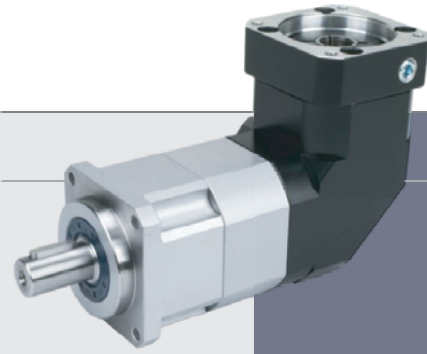
Model No.	Unit	Ratio	44	62	90	120	142
Rated Output Torque	Nm	3	17	54	145	301	553
		4	15	48	128	269	491
		5	14	45	132	278	510
		6	13	41	125	252	466
		7	13	41	123	258	473
		8	12	39	115	241	442
		9	11	40	120	227	412
		10	12	40	116	246	452
		12	13	41	125	252	466
		14	13	41	123	258	473
		16	12	39	115	241	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	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	Nm	3~20	5,000	5,000	5,000	4,000	4,000
Torsional Rigidity	Nm/arc min	3~20	3	6	14	27	60
Max. Radial Force	N	3~20	720	1,120	3,040	6,460	8,830
Max. Axial Force	N	3~20	360	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	Vigo Grease Re #0				
Degree of Gearbox Protection		3~20	IP65				
Mounting Position	dB	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

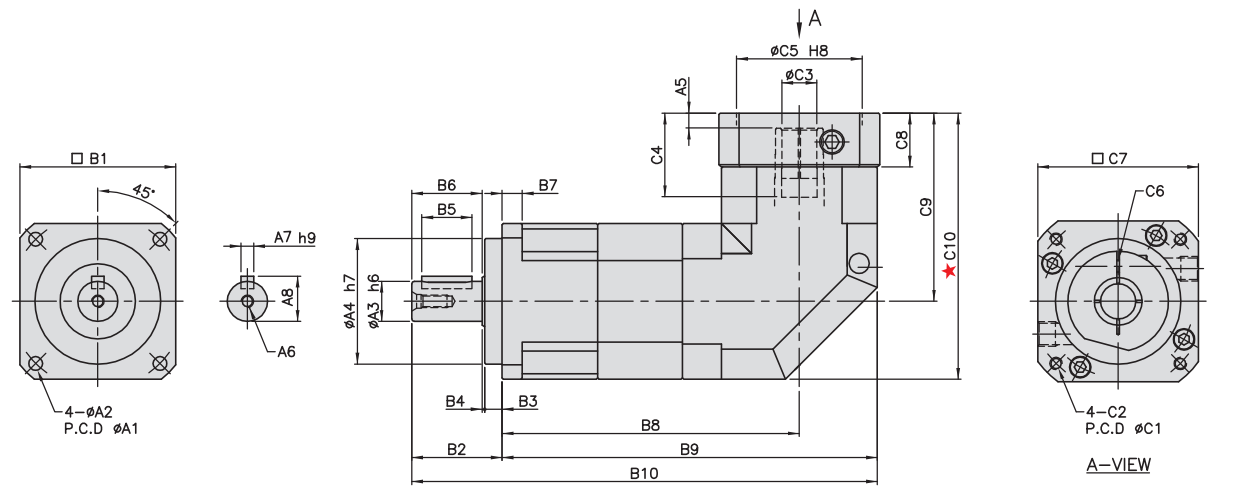
Double Reduction

RATIO : 15.20.25.30.35.40.50.60.70.80.

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



High Precision Planetary Reducer



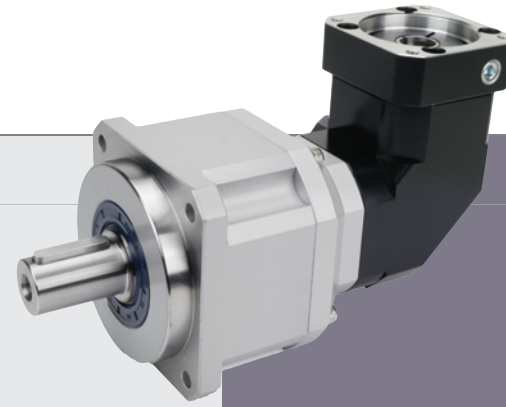
unit:mm

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	70, 75, 90	70, 90, 145	90, 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	11, 12	14, 16	19, 22	32, 35,(38)
C4	8,(9, 11)	14,(16, 19)	19,(22, 24)	24,(28, 32)	
C5	30, 40, 50	50, 60, 70	50, 70, 110	70, 110, 130	110, 114.3, 130, 180
C6	M3	M5	M6	M8	M10
C7	46, 55, 60	64, 70, 80	92, 110, 130	130, 150	146, 150, 180, 190
C8	16	21.5	26.5, 41	35.5, 45.5	35.5
C9	61	77	115.3, 129.8	141, 151	174
C10	83	108	160.3, 174.8	201, 211	245

Mass Moments of Inertia (kg · cm²)

Ratio	44	62	90	120	142
15	0.09	0.36	6.28	6.85	23.45
20	0.09	0.36	6.28	6.85	23.45
25	0.09	0.36	2.28	6.85	23.45
30	0.09	0.36	2.28	6.85	23.50
35	0.09	0.36	2.28	6.85	23.50
40	0.09	0.36	2.28	6.85	23.50
50	0.09	0.36	2.28	6.85	23.50
60	0.09	0.36	2.28	6.85	23.50
70	0.09	0.36	2.28	6.85	23.50
80	0.09	0.36	2.28	6.85	23.50
90	0.09	0.36	2.28	6.85	23.50
100	0.09	0.36	2.28	6.85	23.50
120	0.03	0.10	1.88	6.20	21.80
140	0.03	0.10	1.88	6.20	21.80
160	0.03	0.10	1.88	6.20	21.80
180	0.03	0.10	1.88	6.20	21.80
200	0.03	0.10	1.88	6.20	21.80

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	39	115	241	442
		90	11	40	120	227	412
		100	12	40	116	246	453
		120	13	41	125	252	466
		140	13	41	123	258	473
		160	12	39	115	241	442
180	11	40	120	227	412		
200	12	40	116	246	453		
Max. Output Torque	Nm	15~200	3 Times of Rated Output Torque				
Rated Input Speed	rpm	15~200	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	Nm	15~200	5,000	5,000	5,000	4,000	4,000
Torsional Rigidity	Nm/arcmin	15~200	3	6	14	27	60
Max. Radial Load	N	15~200	720	1,120	3,040	6,460	8,830
Max. Axial Load	N	15~200	360	560	1,520	3,320	4,410
Service Life	hr	15~200	10,000(Continuous Operation 4,000hrs)				
Efficiency	%	15~200	≥ 92%				
Operating Temperature	°C	15~200	-25°C~+90				
Lubrication		15~200	Vigo Grease Re #0				
Degree of Gearbox Protection		15~200	IP65				
Mounting Position		15~200	Any				
Nosie Level	dB	15~200	≤70	≤72	≤74	≤76	≤78
Weight ±3%	Kg	15~200	1.5	3	8.15	13.9	29.4



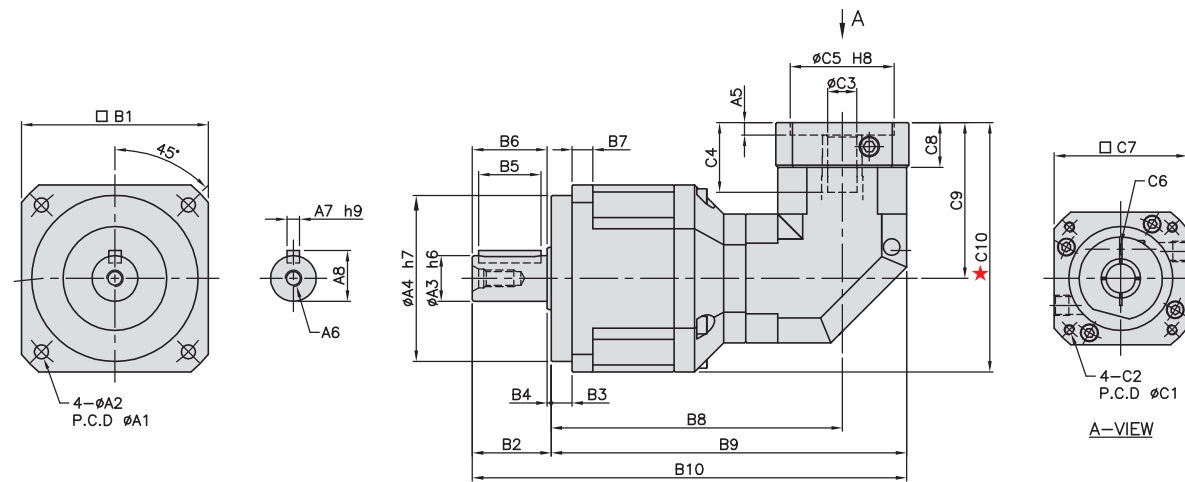
MODEL : PBL (62~142)S-H

Double Reduction

RATIO : 15.20.25.30.35.40.50.60.70.80.

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

High Precision Planetary Reducer



unit:mm

Model code	62	90	120	142
A1	70	100	130	165
A2	5.5	6.8	9	11
A3	16	22	32	40
A4	50	80	110	130
A5	6	6	9	10
A6	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75
A7	5	6	10	12
A8	18	24.5	35	43
B1	62	90	120	142
B2	36	48	65	92
B3	7	10	12	15
B4	1	2	3	3
B5	20	30	40	65
B6	28	36	50	74
B7	8	10	12	15
B8	110.5	130	181.6	214.5
B9	132.5	161	226.6	274.5
B10	168.5	209	291.6	366.5
C1	46, 60, 63, 70	70, 75, 90	90, 100, 115, 145	115, 145
C2	M4, M5	M4, M5, M6	M6, M8, M10	M6, M8, M10
C3	8	14	19	24
C4	27	33.5	53	67
C5	30, 40, 50	50, 60, 70	70, 80, 95, 110	95, 110
C6	M3	M5	M6	M8
C7	46, 55, 60	67, 70, 80	92, 110, 130	110, 130
C8	16	21.5	26.5	35.5
C9	61	77	115.3	141
C10	92	122	175.3	212

■ Mass Moments of Inertia (kg · cm²)

Ratio	62	90	120	142
15	0.09	0.36	6.28	6.85
20	0.09	0.36	6.28	6.85
25	0.09	0.36	2.28	6.85
30	0.09	0.36	2.28	6.85
35	0.09	0.36	2.28	6.85
40	0.09	0.36	2.28	6.85
50	0.09	0.36	2.28	6.85
60	0.09	0.36	2.28	6.85
70	0.09	0.36	2.28	6.85
80	0.09	0.36	2.28	6.85
90	0.09	0.36	2.28	6.85
100	0.09	0.36	2.28	6.85
120	0.03	0.10	1.88	6.20
140	0.03	0.10	1.88	6.20
160	0.03	0.10	1.88	6.20
180	0.03	0.10	1.88	6.20
200	0.03	0.10	1.88	6.20

Model No.	Unit	Ratio	62	90	120	142
Rated Output Torque	Nm	15	54	145	301	553
		20	48	128	269	491
		25	45	132	278	510
		30	41	125	252	466
		35	41	123	258	473
		40	39	115	241	442
		50	45	132	278	510
		60	41	125	252	466
		70	41	123	258	473
		80	39	115	241	442
		90	40	120	227	412
		100	40	116	246	453
		120	41	125	252	466
		140	41	123	258	473
		160	39	115	241	442
180	40	120	227	412		
200	40	116	246	453		
Max. Output Torque	Nm	15~200	3 Times of Rated Output Torque			
Rated Input Speed	rpm	15~200	3,000	3,000	3,000	3,000
Max. Input Speed	Nm	15~200	5,000	5,000	4,000	4,000
Torsional Rigidity	Nm/arcmin	15~200	6	14	27	60
Max. Radial Load	N	15~200	1,120	3,040	6,460	8,830
Max. Axial Load	N	15~200	560	1,520	3,230	4,410
Service Life	hr	15~200	10,000(Continuous Operation 4,000hrs)			
Efficiency	%	15~200	≥ 92%			
Operating Temperature	°C	15~200	-25°C~+90			
Lubrication		15~200	Vigo Grease Re #0			
Degree of Gearbox Protection		15~200	IP65			
Mounting Position		15~200	Any			
Noise Level	dB	15~200	≤72	≤74	≤76	≤78
Weight ±3%	Kg	15~200	2	6.1	12.5	23.2