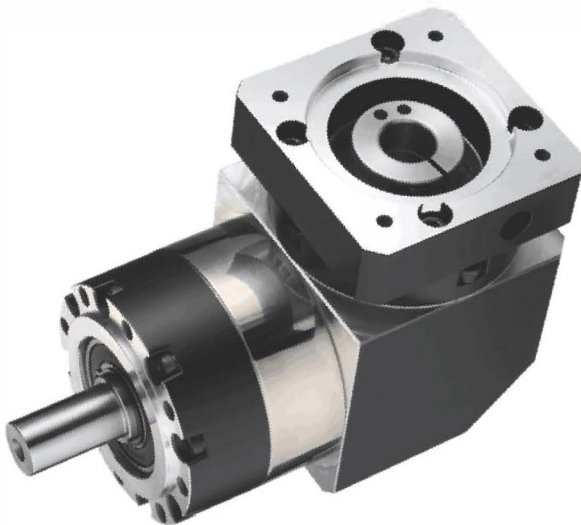


Standard Type Right Angle Planetary Gearbox

PER



- 1. Space-saving
The straight cross reducer uses spiral bevel gear. The installation of the motor can achieve 90 degree bending and save the installation space.
- 2.High rigidity & torque
The use of integral ball bearings greatly improves the rigidity and torque.
- 3. Connector and shaft sleeve mode
It can be installed on any motor in the world.
- 4. No grease leakage
The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.
- 5.Convenient maintenance
No need to replace the grease in the product life period , and the installation is more convenient.

Model Selection of Speed Reducers

PER Type

PER090 - 10 - S1 - P1 / Motor

Reducer Model

PER040, PER060, PER090
PER120, PER160

Output Shaft Keyway

S1: Solid Output Shaft No Keyway
S2: Standard (Keyway)
S3: Output for holes

Motor Model

Motor Manufacturer & Model

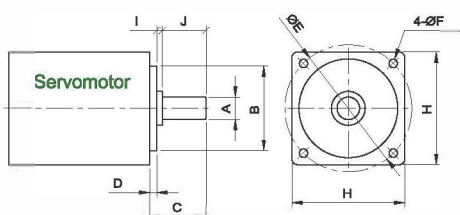
Ratio

1-stage: 3, 4, 5, 6, 7, 8, 9, 10
2-stage: 12, 15, 16, 20, 25, 28, 30, 35, 40, 50, 70, 80, 100
3-stage: 60, 64, 72, 80, 90, 100, 120, 144, 150, 160, 180, 200
240, 258, 288, 320, 384, 512, 600, 800, 1000

Backlash Grade

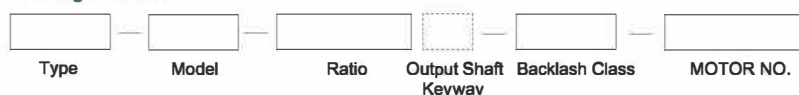
P0: High precision backlash
P1: Precision backlash
P2: Standard backlash

The gearbox matching motor needs to be confirmed with following dimensions :



A	B	C	D	E	F	H	I	J

Naming Scheme:



PER Reducer Specifications

Specs	Unit	Stage	Ratio	PER040	PER060	PER090	PER120	PER160
Rated Output Torque / T _{2N}	Nm	1	3	14	28	113	150	323
			4	15	38	115	160	364
			5	17	40	118	160	423
			7	13	35	110	149	358
			10	12	25	105	141	293
		2	15	14	28	113	150	323
			20	15	38	120	160	364
			25	17	40	118	160	423
			30	13	28	113	150	323
			35	17	35	118	160	358
			40	12	38	115	146	364
			50	15	40	118	160	423
			70	13	35	110	149	358
			100	12	25	110	141	293
Max. Output Torque / T _{2NOT} ¹	Nm	1,2	3~100	3Times of Nominal Output Torque				
Rated Input Speed / Π _{IN}	rpm	1,2	3~100	3000	3000	3000	3000	2500
Max. Input Speed / Π _{IS}	rpm	1,2	3~100	5000	5000	5000	5000	3600
Precision Backlash P1	arcmin	1	3~10	≤10	≤10	≤10	≤10	≤10
		2	12~100	≤12	≤12	≤12	≤12	≤12
Standard Backlash P2	arcmin	1	3~10	≤12	≤12	≤12	≤12	≤12
		2	12~100	≤14	≤14	≤14	≤14	≤14
Torsional Rigidity	Nm/arcmin	1,2	3~100	3	6	12	22	50
Max. Radial Force / F _{2R} ²	N	1,2	3~100	320	460	1300	3200	6520
Max. Axial Force / F _{2A} ²	N	1,2	3~100	160	230	660	1600	3260
Service Life	hr	1,2	3~100	20000 h				
Efficiency / η	%	1	3~10	≥97%				
		2	15~100	≥94%				
Weight	kg	1	3~10	0.73	0.99	2.1	4.98	18.2
		2	15~100	1.05	1.46	3.2	6.92	24.9
Operating Temperature	°C	1,2	3~100	-25°C~+90°C				
Lubrication		1,2	3~100	Synthetic Grease				
Protection Class		1,2	3~100	IP65				
Mounting Position		1,2	3~100	Any Direction				
Noise Level (n1=3000rpm, No load)	dB(A)	1,2	3~100	≤62	≤63	≤65	≤67	≤68

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	PER040	PER060	PER090	PER120	PER160
Moment of Inertia	kg.cm ²	1	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
			7	0.03	0.13	0.45	2.65	7.25
			10	0.03	0.13	0.45	2.62	7.14
		2	12~40	0.03	0.13	0.44	2.58	7.07
			50~100	0.03	0.13	0.44	2.57	7.04

- The Max. acceleration torque T_{2B}=60% of T_{2NOT}
- When output speed is 100rpm, acting on the output shaft center position.
- 3-stage big ratios are not in the above table. There is shaft lengthening and enlarging design. Please tell sales person if you need it.

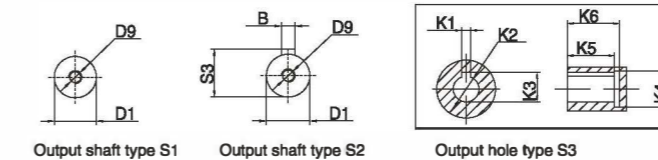
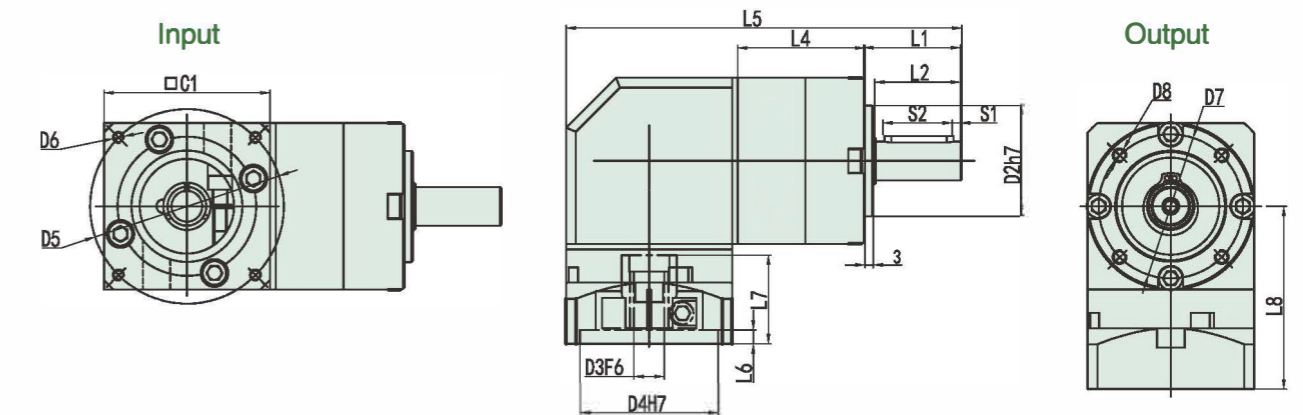
MODEL: PER

1-Stage

Ratio: 3, 4, 5, 6, 7, 8, 9, 10



Dimensions:



Unit:mm

Size	PER060-L1	PER090-L1	PER120-L1	PER160-L1
D1	φ 14 (16)	φ 20 (22)	φ 25 (32)	φ 40
D2	φ 40	φ 60	φ 80	φ 130
D3	φ 14 (φ 6.35-19)	φ 19 (φ 11-24)	φ 22 (φ 16-24)	φ 35 (φ 22-38)
D4	φ 50 (φ 30-70)	φ 70 (φ 50-110)	φ 110 (φ 55.5-110)	φ 114.3 (φ 110-114.3)
D5	φ 70 (φ 45-90)	φ 90 (φ 70-145)	φ 145 (φ 90-155)	φ 200 (φ 145-200)
D6	4-M4 (M3-M6)	4-M5 (M4-M8)	4-M8 (M6-M12)	4-M12 (M8-M12)
D7	φ 52	φ 70	φ 100	φ 145
D8	4-M5X10L	4-M6X12L	4-M10X20L	4-M12X24L
D9	M5X0.8P	M8X1.25P	M10X1.5P	M16X2P
L1	35	40	55	87
L2	31	35	49	80
L3	3	3	4	5
L4	46	55	80	111
L5	143	190	273	295
L6	5(4-6)	8(5-8)	8(5-8)	5 (5-7)
L7	32(32-44)	42(42-60)	70 (59-70)	86 (62-86)
L8	66(66-88)	95.5(95.5-113.5)	130 (119-130)	165.5 (165.5-189.5)
C1	60(60-90)	90(90-130)	130 (120)	175 (142)
S1	3	3	5	5
S2	25	30	40	70
S3	16	22.5	28	43
B	5	6	8	12
K1	4	6	8	10
K2	φ 11	φ 22	φ 28	φ 38
K3	12.8	24.5	31.3	41.3
K4	φ 16	φ 32	φ 38	φ 48
K5	15	20	27	35
K6	18	24	32	40

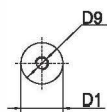
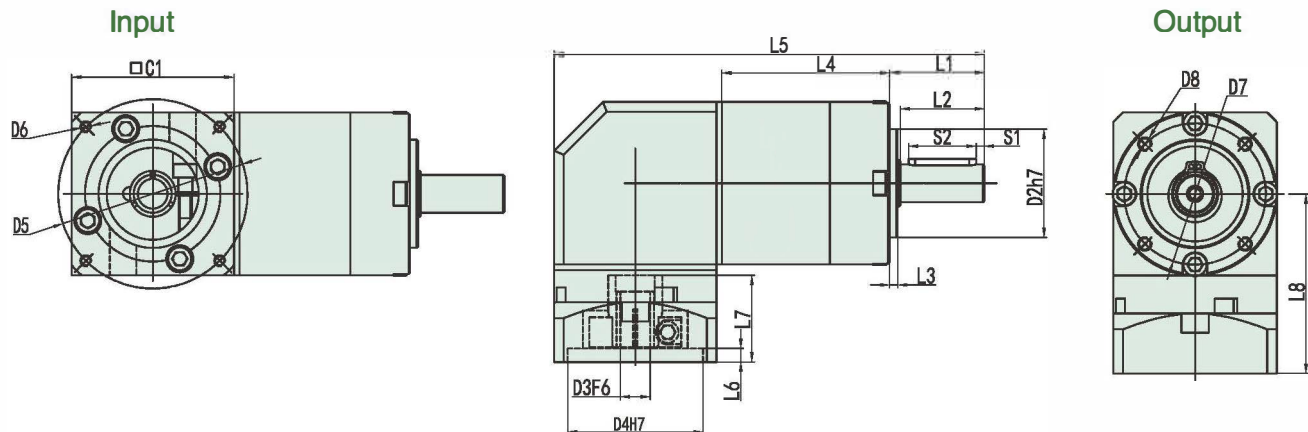
MODEL: PER

2-Stage

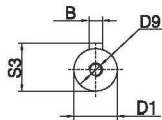
Ratio: 12, 15, 16, 20, 25, 28, 30, 35
40, 50, 70, 80, 100



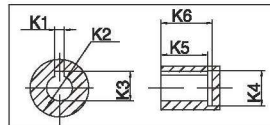
Dimensions:



Output shaft type S1



Output shaft type S2



Output hole type S3

Unit:mm

Size	PER060-L2	PER090-L2	PER120-L2	PER160-L2
D1	φ 14 (16)	φ 20 (22)	φ 25 (32)	φ 40
D2	φ 40	φ 60	φ 80	φ 130
D3	φ 14 (φ 6.35-19)	φ 19 (φ 11-24)	φ 22 (φ 16-24)	φ 35 (φ 22-38)
D4	φ 50 (φ 30-70)	φ 70 (φ 50-110)	φ 110 (φ 55.5-110)	φ 114.3 (φ 110-114.3)
D5	φ 70 (φ 45-90)	φ 90 (φ 70-145)	φ 145 (φ 90-155)	φ 200 (φ 145-200)
D6	4-M4 (M3-M6)	4-M5 (M4-M8)	4-M8 (M6-M12)	4-M12 (M8-M12)
D7	φ 52	φ 70	φ 100	φ 145
D8	4-M5X10L	4-M6X12L	4-M10X20L	4-M12X24L
D9	M5X0.8P	M8X1.25P	M10X1.5P	M16X2P
L1	35	40	55	87
L2	31	35	49	80
L3	3	3	4	5
L4	62	78.5	110	149
L5	159	213.5	303	333
L6	5(4-6)	8(5-8)	8(5-8)	5 (5-7)
L7	32(32-44)	42(42-60)	70 (59-70)	86 (62-86)
L8	66(66-88)	95.5(95.5-113.5)	130 (119-130)	165.5 (165.5-189.5)
C1	60(60-90)	90(90-130)	130 (120)	175 (142)
S1	3	3	5	5
S2	25	30	40	70
S3	16	22.5	28	43
B	5	6	8	12
K1	4	6	8	10
K2	φ 11	φ 22	φ 28	φ 38
K3	12.8	24.5	31.3	41.3
K4	φ 16	φ 32	φ 38	φ 48
K5	15	20	27	35
K6	18	24	32	40