

# PNSR

The PNSR Primary Series right angle round mounting flange, caged standard class planetary gears in a right angle housing through sizes 120. High torque capacity, quiet operation with backlash levels as low as <math><11\text{ arc-min}</math>. Maximum ratio 300:1.

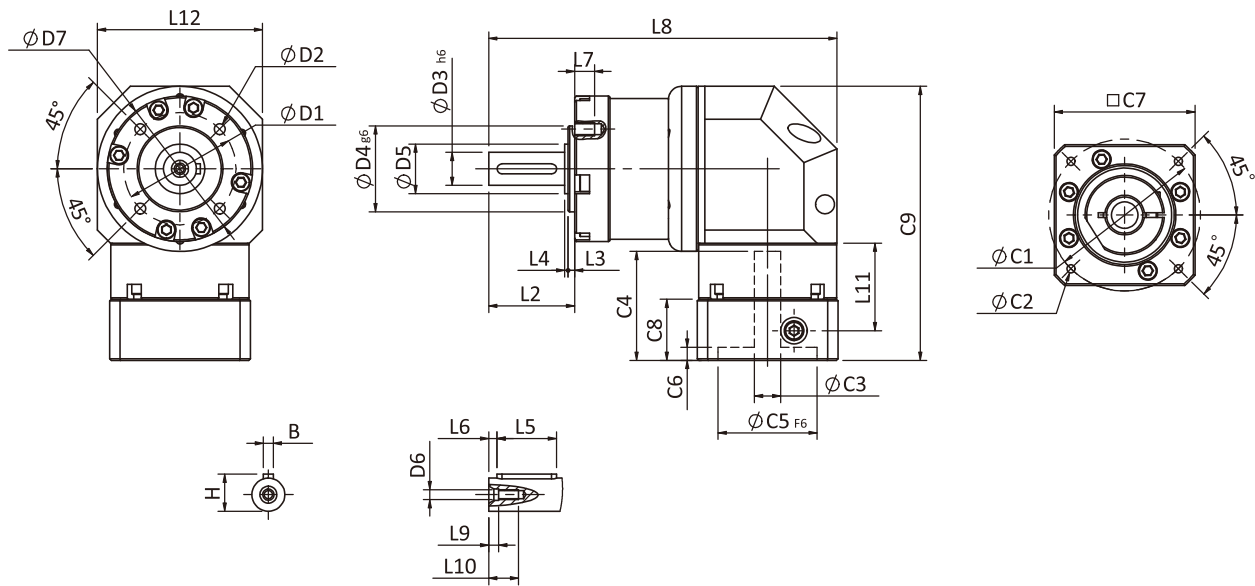


Frame Size (mm)	40, 60, 80, 120
Ratio	3:1 - 1000:1
Nominal Input Speed (rpm)	2,500 - 4,500
Max Input Speed (rpm)	5,000 - 7,500
Backlash (arc-min)	1 Stage: 11 - 18 2 Stages: 13 - 20
Noise Level (dBA / 1m)	66 - 73

## Features

- ▶ Right angle configuration.
- ▶ Torque Capacity Range: 8 Nm through 215 Nm.
- ▶ Caged Planet Carrier: with standard planet gear set.
- ▶ High performance, efficiencies and low acoustics.
- ▶ Wide Range of Ratios: 11 single stage ratios, 16 two-stage ratios.
- ▶ Input adapter for all servo and stepper motors.

# PNSR Single Stage Dimensions



## Specifications

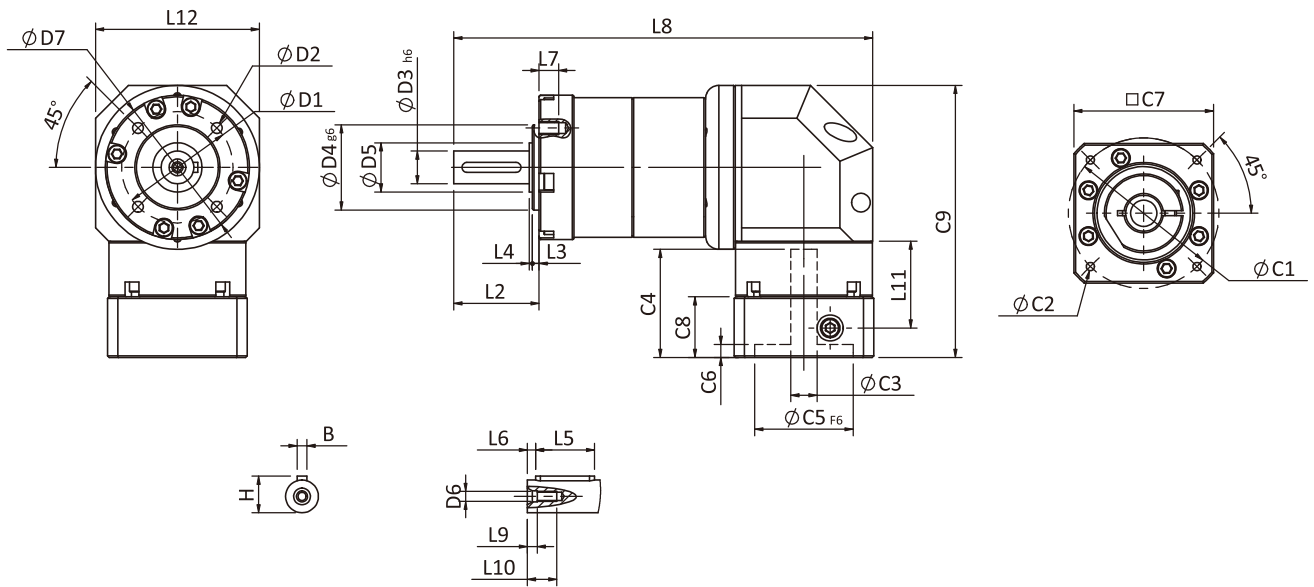
Unit:mm

Dimensions	PNSR40	PNSR60	PNSR80	PNSR120
D1	34	52	70	-
D2	M4x0.7P	M5x0.8P	M6x1.0P	-
D3 <sub>h6</sub>	10	14	20	-
D4 <sub>g6</sub>	26	40	60	-
D5	15	20	35	-
D6	M3x0.5P	M5x0.8P	M6x1.0P	-
D7	44	60	90	-
L2	26	35	40	-
L3	2	3	3	-
L4	1	1	1	-
L5	18	25	28	-
L6	2.5	2.5	4	-
L7	6	8	10	-
L8	105.4	139.7	189.2	-
L9	3	4	4.5	-
L10	9	16.5	16.5	-
L11	26.5	36	40.7	-
L12	50	70	98	-
C1 <sup>2</sup>	46	70	90	-
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P	-
C3 <sup>2</sup>	$\leq 8 / \leq 11$	$\leq 14 / \leq 19$	$\leq 19 / \leq 24$	-
C4 <sup>2</sup>	33	44	57	-
C5 <sup>2</sup> <sub>F6</sub>	30	50	70	-
C6 <sup>2</sup>	4	4	6	-
C7 <sup>2</sup>	42.6	60	90	-
C8 <sup>2</sup>	18.5	20	26	-
C9 <sup>2</sup>	83	111.4	149.2	-
B	3	5	6	-
H	11.2	16	22.5	-

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

# PNSR Double Stage Dimensions-1



## Specifications

Unit:mm

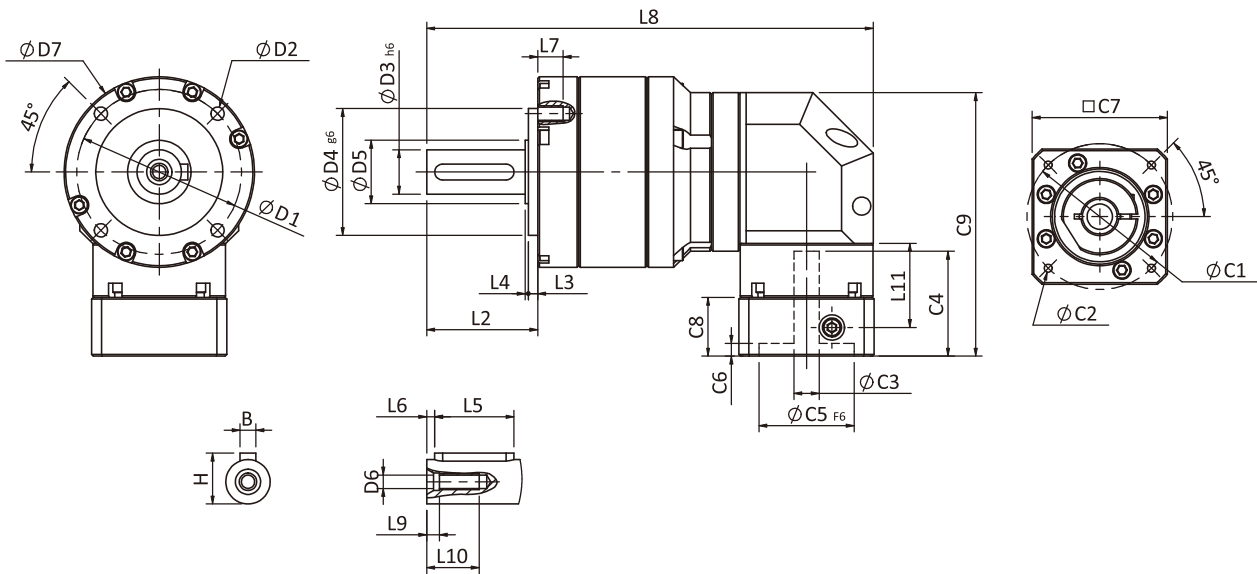
Dimensions	PNSR40	PNSR60	PNSR80	PNSR120
D1	34	52	70	-
D2	M4x0.7P	M5x0.8P	M6x1.0P	-
D3 <sub>h6</sub>	10	14	20	-
D4 <sub>g6</sub>	26	40	60	-
D5	15	20	35	-
D6	M3x0.5P	M5x0.8P	M6x1.0P	-
D7 <sup>1</sup>	44 (45)	60	90	-
L2	26	35	40	-
L3	2	3	3	-
L4	1	1	1	-
L5	18	25	28	-
L6	2.5	2.5	4	-
L7	6	8	10	-
L8	127.9	166.7	223	-
L9	3	4	4.5	-
L10	9	16.5	16.5	-
L11	26.5	36	40.7	-
L12	50	70	98	-
C1 <sup>2</sup>	46	70	90	-
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P	-
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24	-
C4 <sup>2</sup>	33	44	57	-
C5 <sup>2F6</sup>	30	50	70	-
C6 <sup>2</sup>	4	4	6	-
C7 <sup>2</sup>	42.6	60	90	-
C8 <sup>2</sup>	18.5	20	26	-
C9 <sup>2</sup>	83	111.4	149.2	-
B	3	5	6	-
H	11.2	16	22.5	-

\*1. D7=45 when gear ratios are 100, 200, and 300.

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

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# PNSR Double Stage Dimensions-2



## Specifications

Unit:mm

Dimensions	PNSR60T	PNSR80T	PNSR120T
D1	52	70	100
D2	M5x0.8P	M6x1.0P	M10x1.5P
D3 <sup>h6</sup>	14	20	25
D4 <sup>g6</sup>	40	60	80
D5	20	35	40
D6	M5x0.8P	M6x1.0P	M10x1.5P
D7	60	90	116
L2	35	40	55
L3	3	3	4
L4	1	1	1
L5	25	28	40
L6	2.5	4	5
L7	8	10	15
L8	140.7	181.8	268.9
L9	4	4.5	6
L10	16.5	16.5	26
L11	26.5	36	40.7
C1 <sup>2</sup>	46	70	90
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24
C4 <sup>2</sup>	33	44	57
C5 <sup>2F6</sup>	30	50	70
C6 <sup>2</sup>	4	4	6
C7 <sup>2</sup>	42.6	60	90
C8 <sup>2</sup>	18.5	20	26
C9 <sup>2</sup>	88	121.4	157.7
B	5	6	8
H	16	22.5	28

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

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# PNSR Specifications

Specifications	Stage	Ratio	PNSR40	PNSR60	PNSR80	PNSR120	
Nominal Output Torque $T_{2N}$	1	3	9	28	85	135	
		4	10	32	80	180	
		5	11	35	95	215	
		7	10	28	85	200	
		8	10	32	80	195	
		9	9	25	75	195	
		10	11	35	95	210	
		12	10	32	80	-	
		14	10	28	85	200	
	15	11	35	95	-		
	16	8	23	75	195		
	2	20	11	35/31	95/95	215	
		25	11	35/30	95/95	215	
		30	11	35/30	95/95	215	
		35	11	35/28	95/95	215	
		40	11	35/31	95/95	215	
		50	11	35/30	95/95	215	
		60	11	35/30	95/95	215	
		70	11	35/28	95/95	215	
		80	11	35/27	95/92	215	
100		8	35/27	95/82	205		
120		11	35/27	95/92	215		
160	-	23/23	75/75	195			
200	8	21/21	65/65	180			
243	8	23/23	75/75	195			
300	8	21/21	65/65	180			
Emergency Stop Torque $T_{2NOT}$	N•m	(2.5 times of Nominal Output Torque) (*Max. Output Torque $T_{2B}$ =60% of Emergency Stop Torque)					
Nominal Input Speed $n_{1N}$	rpm	1,2	3-300	4500	4000	3000	2500
Max. Input Speed $n_{1max}$	rpm	1,2	3-300	7500	7000	6000	5000
Standard Backlash P2	arcmin	1	3-16	≤ 18	≤ 15	≤ 13	≤ 11
		2	20-300	≤ 20	≤ 17	≤ 15	≤ 13
Torsional Rigidity	N•m /arcmin	1,2	3-300	1.2	3.5	8.5	17
Max. Radial Load $F_{2rB}^1$	N	1,2	3-300	580	890	2050	4370
Max. Axial Load $F_{2aB}^1$	N	1,2	3-300	410	430	1100	2630
Operating Temp.	°C	1,2	3-300	-10°C ~ +90°C			
Service Life	hr	1,2	3-300	20,000(10,000 Continuous Operation)			
Efficiency	%	1	3-16	≥ 95%			
		2	20-300	≥ 90%			
Weight	kg	1	3-16	1.0	2.4	6.1	12.2
		2	20-300	1.2	2.9/2.7	8.1/6.5	13.8
Mounting Position	-	1,2	3-300	Any Direction			
Noise Level <sup>2</sup>	dBA/1m	1,2	3-300	66	68	70	73
Protection Class	-	1,2	3-300	IP65			
Lubrication	-	1,2	3-300	Synthetic Lubricant			
Inertia (J1)							
Stage	Ratio	unit	PNSR40(φ8)	PNSR60(φ14)	PNSR80(φ19)	PNSR120(φ24)	
1	3, 4, 5, 7	kg•cm <sup>2</sup>	0.07	0.40	2.00	2.7	
	Other ratios		0.05	0.30	1.50	2.2	
Stage	Ratio		PNSR40(φ8)	PNSR60(φ14)/ PNSR60T(φ8)	PNSR80(φ19)/ PNSR80T(φ14)	PNSR120T(φ19)	
2	20, 25, 35		0.07	0.40/0.07	2.0/0.40	2.0	
	Other ratios		0.05	0.30/0.05	1.5/0.30	1.5	
* 1. Applied to the output shaft center at 100 rpm.							
* 2. Environment noise level 30 dB; distance 1m; measured under free loading with input speed 3000 rpm; ratio = 10 (1-stage) or ratio = 100 (2-stage).							
※The above figures/specifications are subject to change without prior notice.							

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.