

PUR

High Radial Load Capacity Planetary Gearboxes

The PUR series of output shaft right angle helical gearbox provide a wide range of performance levels to high positioning accuracy and motion control applications, particularly when high precision and high torsional rigidity are required. Frame sizes 60-220 mm with the best level of backlash ≤ 2 arc-min. Taper roller bearings with maximum radial load capacity up to 27800 N, and axial load capacity up to 16200 N. The PUR is specially well suited to work with pinion and rack for linear operation. Commonly adapted in metal cutting machines, wood processing equipment, machine centers and highly dynamic motion control systems. In-line configuration (PUL series) is also available with max. Frame size 220 mm.

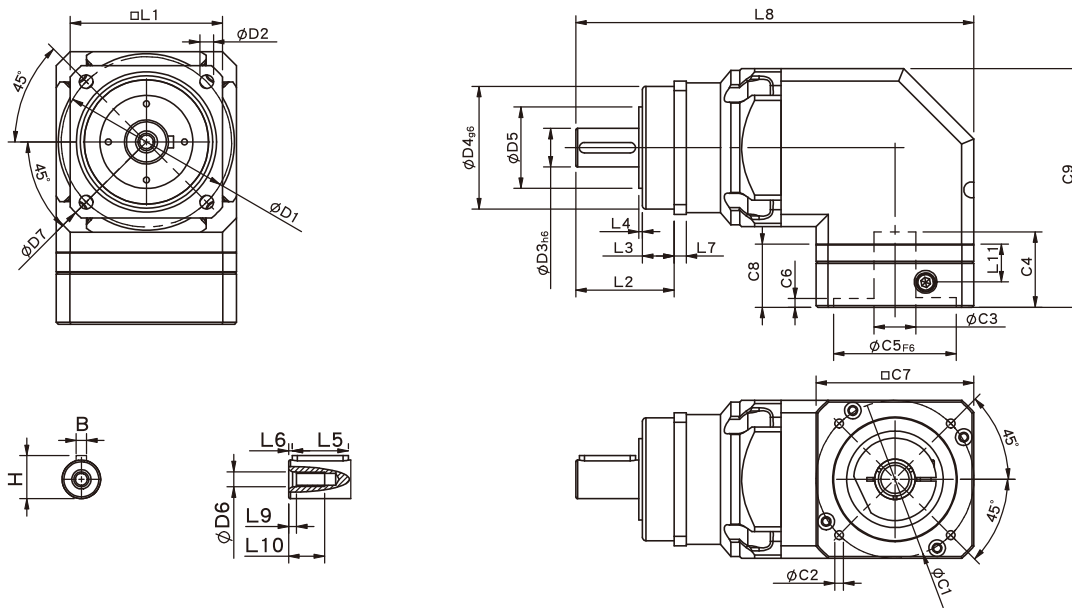


Frame Size (mm)	60, 75, 100, 140, 180, 220
Ratio	3:1 - 200 : 1
Nominal Input Speed (rpm)	2,000 - 5,000
Max Input Speed (rpm)	4,000 - 10,000
Backlash (arc-min)	1 Stage : 2 - 7 2 Stages : 4 - 9
Noise Level (dBA / 1m)	64 - 74

Features

- ▶ 3 Levels of backlash, 6 frame sizes from 60-220 mm.
- ▶ Premium and precision gear design, ratios from 3-200:1.
- ▶ One-piece planet carrier/output shaft, high rigidity and radial load capacity.
- ▶ Hardened and ground gearing, high wear resistance and impact toughness.
- ▶ One-piece ring gear/housing, high precision and torque output.
- ▶ Planets with full needle bearing support.
- ▶ IP65 enclosure and synthetic lubricant, maintenance-free service life.

PUR Single Stage Dimensions



Specifications

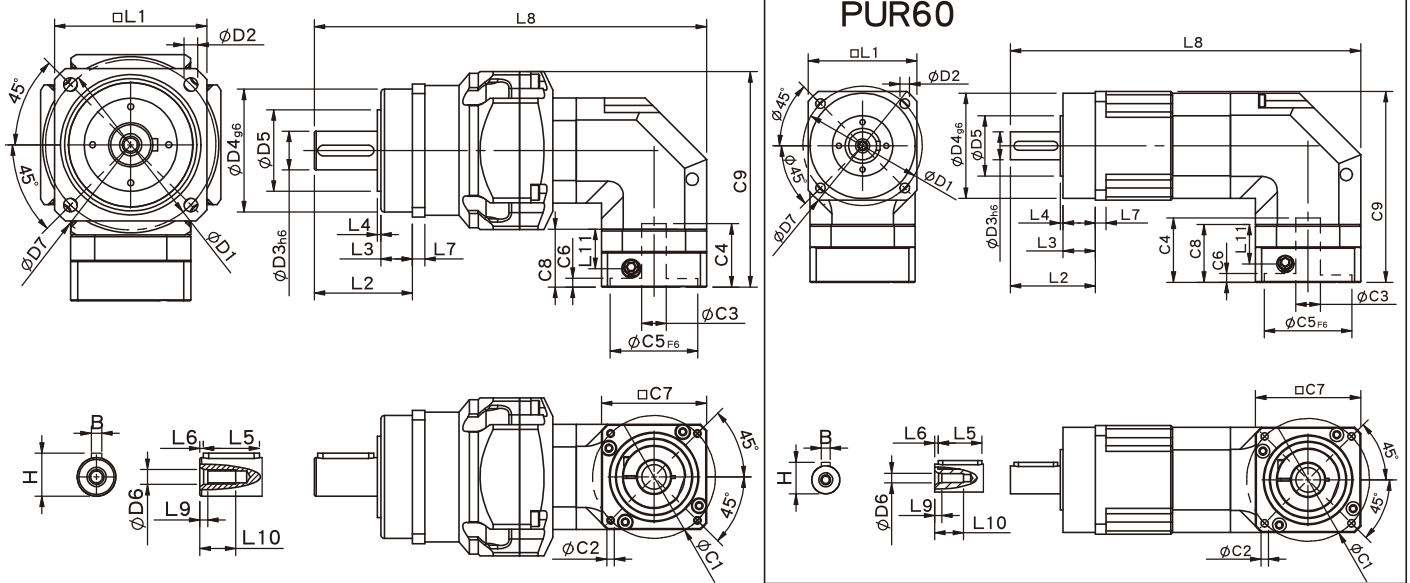
Unit:mm

Dimensions	PUR60	PUR75	PUR100	PUR140	PUR180	PUR220
D1 _{H7}	68	85	120	165	215	250
D2	5.5	6.8	9	11	13	17
D3 _{h6}	16	22	32	40	55	75
D4 _{g6}	60	70	90	130	160	180
D5	34.4	46.4	59.6	79.2	94.5	114.4
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	80	100	138	186	239	292
L1	62	76	105	142	180	220
L2	48.5	56	88	112	112	138
L3	18.5	18	28	27	27	30
L4	1.5	2	2	3	3	3
L5	25	32	40	60	70	90
L6	2	2	5	5	6	7
L7	6	7	10	12	15	20
L8	166.7	227	260.5	346.2	414.7	490.2
L9	4	4.5	6	6	8	15
L10	16.5	20.5	30	38	48	42
L11	22.5	21.5	31.8	44.7	44	60
C1 ²	70	90	115	145	200	215
C2 ²	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 ²	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50	≤55
C4 ²	34	45	53.5	76.8	78.8	98.7
C5 ^{2F6}	50	70	95	110	114.3	180
C6 ²	4	4	6	5.5	6	6
C7 ²	60	90	115	140	180	220
C8 ²	33	36	48	65	65	85
C9 ²	108.8	136	174.5	207	247.5	287.5
B	5	6	10	12	16	20
H	18	24.5	35	43	59	79.5

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

PUR Double Stage Dimensions



Specifications

Unit:mm

Dimensions	PUR60	PUR60T	PUR75T	PUR100T	PUR140T	PUR180T	PUR220T
D1	68	68	85	120	165	215	250
D2	5.5	5.5	6.8	9	11	13	17
D3 _{h6}	16	16	22	32	40	55	75
D4 _{g6}	60	60	70	90	130	160	180
D5	34.4	34.6	46.4	59.6	79.2	94.5	114.4
D6	M5x0.8P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	80	80	100	138	186	239	292
L1	62	62	76	105	142	180	220
L2	48.5	48.5	56	88	112	112	138
L3	18.5	18.5	18	28	27	27	30
L4	1.5	1.5	2	2	3	3	3
L5	25	25	32	40	60	70	90
L6	2	2	2	5	5	6	7
L7	6	6	7	10	12	15	20
L8	199.7	170.3	223.7	286.5	358.5	445.4	537.2
L9	4	4	4.5	6	6	8	15
L10	16.5	16.5	20.5	30	38	48	42
L11	22.5	15.5	22.5	21.5	31.8	44.7	44
C1 ²	70	46	70	90	115	145	200
C2 ²	M5x0.8P	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤14/≤19	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50
C4 ²	34	29	34	45	53.5	76.8	78.8
C5 ² F ₆	50	30	50	70	95	110	114.3
C6 ²	4	4	4	6	6	5.5	6
C7 ²	60	42.6	60	90	115	140	180
C8 ²	33	25	33	36	48	65	65
C9 ²	108.8	80.5	122.8	148.5	188	223.5	267.5
B	6	5	6	10	12	16	20
H	18	18	24.5	35	43	59	79.5

* C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

* Specification subject to change without notice.

PUR Specifications

Specifications		Stage	Ratio	PUR60	PUR75	PUR100	PUR140	PUR180	PUR220
Nominal Output Torque T_{2N}	N•m	1	3	53	145	180	340	580	950
			4	55	150	240	500	1100	1500
			5	54	140	290	600	1200	1800
			6	46	135	280	500	1100	1620
			7	44	125	270	530	1100	1750
			8	41	110	240	470	1000	1550
			9	37	95	220	430	900	1500
			10	50	130	260	540	900	1500
			14	44	125	270	530	1100	1750
			20	37	95	220	430	900	1450
		Stage	Ratio	PUR60(T)	PUR75T	PUR100T	PUR140T	PUR180T	PUR220T
		2	15	53	145	180	600	1200	2000
			20	55	150	240	600	1200	2000
			25	54	140	290	600	1200	2000
			30	53	145	180	600	1200	2000
			35	54	140	290	600	1200	2000
			40	55	150	240	600	1200	2000
			45	54	140	290	600	1200	2000
			50	54	140	290	600	1200	2000
			60	46	135	280	560	1100	1850
70	44		125	270	530	1100	1750		
80	41	110	240	480	1000	1550			
90	37	95	220	430	900	1500			
100	37	95	220	430	900	1450			
120	46	135	280	560	1100	1850			
140	44	125	270	530	1100	1750			
160	41	110	240	480	1000	1550			
180	37	95	220	430	900	1500			
200	37	95	220	430	900	1450			
Emergency Stop Torque T_{2NOT}	N•m		(3.0 times of Nominal Output Torque) (*Max. Output Torque T_{2B} =60% of Emergency Stop Torque)						
Nominal Input Speed n_{1N}	rpm	1,2	3-200	5000	4000	4000	3000	3000	2000
Max. Input Speed n_{1max}	rpm	1,2	3-200	10000	8000	8000	6000	6000	4000
Micro Backlash P0	arcmin	1 2	3-20 15-200	- -	≤ 3 ≤ 5	≤ 2 ≤ 4	≤ 2 ≤ 4	≤ 2 ≤ 4	≤ 2 ≤ 4
Precision Backlash P1	arcmin	1 2	3-20 15-200	≤ 5 ≤ 7	≤ 5 ≤ 7	≤ 4 ≤ 7	≤ 4 ≤ 7	≤ 4 ≤ 7	≤ 4 ≤ 7
Standard Backlash P2	arcmin	1 2	3-20 15-200	≤ 7 ≤ 9	≤ 7 ≤ 9	≤ 6 ≤ 9	≤ 6 ≤ 9	≤ 6 ≤ 9	≤ 6 ≤ 9
Torsional Rigidity	N•m /arcmin	1,2	3-200	7	14	25	50	150	220
Max. Radial Load F_{2rB}^{-1}	N	1,2	3-200	4130	5220	10650	17600	22000	27800
Max. Axial Load F_{2aB}^{-1}	N	1,2	3-200	2500	3300	5700	11300	14000	16200
Operating Temp.	°C		3-200	-10°C ~ +90°C					
Service Life	hr		3-200	30,000 (15,000 Continuous Operation)					
Efficiency	%	1 2	3-20 15-200	≥ 95% ≥ 92%					
Weight	kg	1 2	3-20 15-200	3.1 3.7(3.3)	5.5 4.9	12.5 13.6	25.5 27	46 50	75 88
Mounting Position	-	1,2	3-200	Any Direction					
Noise Level ²	dBA/1m	1,2	3-200	64	66	68	70	72	74
Protection Class	-	1,2	3-200	IP65					
Lubrication	-	1,2	3-200	Synthetic Lubricant					
Inertia (J1)									
Stage	Ratio	unit		PUR60	PUR75	PUR100	PUR140	PUR180	PUR220
1	3/4/5/7/9	kg•cm ²		0.40	2.28	6.87	24.2	69.8	138.2
	6/8/10/14/20			0.30	1.45	4.76	14.5	50.3	103.6
Stage	Ratio			PUR60(T)	PUR75T	PUR100T	PUR140T	PUR180T	PUR220T
2	15/20/25/35/45			0.40 (0.08)	0.72	3.02	7.83	27.7	80.3
	others			0.30 (0.06)	0.38	1.64	5.00	15.9	55.3

* 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.