

PAE

Primary Series Planetary Gearboxes

Features a square mounting flange and a caged standard class planetary gear design.

Compact in-line housing with frame sizes available up to 115 mm.

Performance Benefits:

- Offers an economic alternative for torque capacity.
- Designed for quiet performance.
- High accuracy with backlash as low as < 6 arc-min.

Specifically engineered for general speed reduction applications.



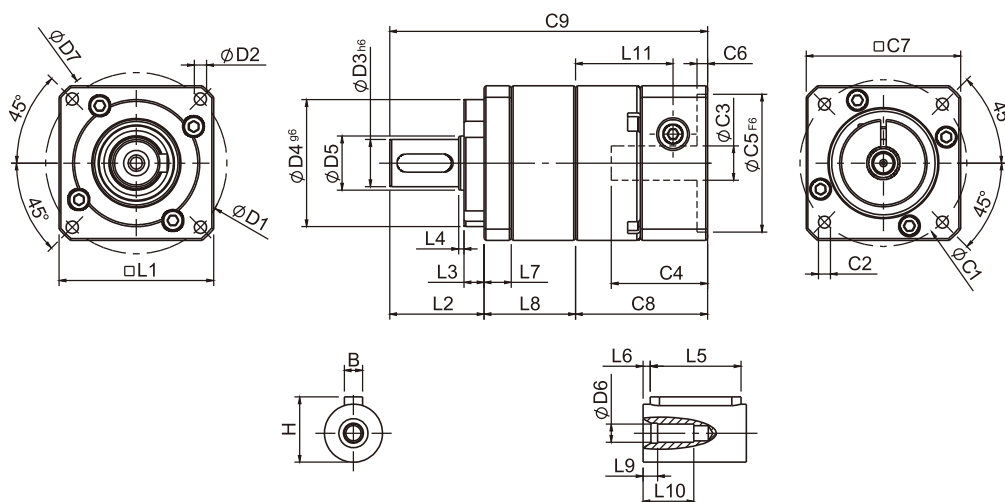
PAE

Frame Size (mm)	42, 60, 90, 115
Ratio	3 : 1 - 100 : 1
Nominal Input Speed (rpm)	2,500 - 4,000
Max Input Speed (rpm)	5,000 - 8,000
Backlash (arc-min)	1 Stage : 6 - 9 2 Stages : 8 - 12
Noise Level (dBA / 1m)	61 - 67

Features

- ▶ In-line Configuration.
- ▶ Output shaft, 13 mm through 32 mm diameter.
- ▶ Torque Capacity Range: 8 Nm through 260 Nm.
- ▶ Caged Planet Carrier: with standard planet gear set.
- ▶ High performance, efficiencies and low acoustics.
- ▶ Wide Range of Ratios: 6 single stage, 12 two stage ratios.
- ▶ Output Bearings deliver radial load capacity as high as 4200 N, and axial capacities up to 2600 N.
- ▶ Square Servo and Step Motor input: accommodates 40 mm through 130 mm, with optional sizes available.

PAE Single Stage Dimensions



Specifications

Unit:mm

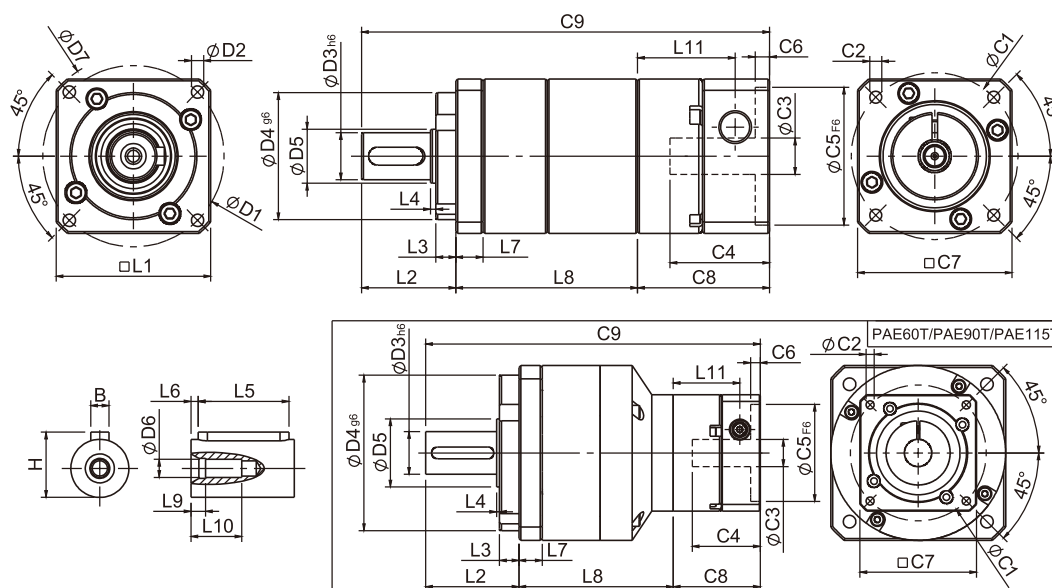
Dimensions	PAE42	PAE60	PAE90	PAE115
D1	50	70	100	130
D2	3.4	5.5	6.5	9
D3 _{h6}	13	16	22	32
D4 _{g6}	35	50	80	110
D5	15	20	35	45
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P
D7	56	80	118	148
L1	42.6(44)	60	90	115
L2	26	37	48	65
L3	5.5	7	10	12
L4	1.5	1.5	1.5	2
L5	15	25	32	40
L6	2	2	3	5
L7	7.3	10	12	16
L8	25	36.3	41.8	60.3
L9	4	4	4.5	6
L10	14	16.5	20.5	30
L11	26.9	34.3	41.5	51.5
C1 ²	46	70	90	145
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24/≤28	≤24/≤32/≤38
C4 ²	26.5	33.5	41	51.5
C5 ² _{F6}	30	50	70	110
C6 ²	4	4	6	6
C7 ²	42.6	60	90	130
C8 ²	36.4	44.8	55.8	68
C9 ²	87.4	118.1	145.6	193.3
B	4	5	6	10
H	15	18	24.5	35

★ L1=44 when gear ratio is 10.

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

★ Specification subject to change without notice.

PAE Double Stage Dimensions-1



Specifications

Unit:mm

Dimensions	PAE42	PAE60	PAE60T	PAE90	PAE90T	PAE115T
D1	50	70	100	130		
D2	3.4	5.5	6.5	9		
D3 _{h6}	13	16	22	32		
D4 _{g6}	35	50	80	110		
D5	15	20	35	45		
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P		
D7	56	80	118	148		
L1	42.6(44)	60	90	115		
L2	26	37	48	65		
L3	5.5	7	10	12		
L4	1.5	1.5	1.5	2		
L5	15	25	32	40		
L6	2	2	3	5		
L7	7.3	10	12	16		
L8	49.9	67	62.6	82.8	72.3	98.4
L9	4	4	4.5	6		
L10	14	16.5	20.5	30		
L11	26.9	34.3	26.9	41.5	34.3	41.5
C1 ²	46	70	46	90	70	90
C2 ²	M4x0.7P	M5x0.8P	M4x0.7P	M6x1.0P	M5x0.8P	M6x1.0P
C3 ²	≤8/≤11	≤14/≤19	≤8/≤11	≤19/≤24/≤28	≤14/≤19	≤19/≤24/≤28
C4 ²	26.5	33.5	26.5	41	33.5	41
C5 ² _{F6}	30	50	30	70	50	70
C6 ²	4	4	4	6	4	6
C7 ²	42.6	60	42.6	90	60	90
C8 ²	36.4	44.8	36.4	55.8	44.8	55.8
C9 ²	112.3	148.8	136	186.6	165.1	219.2
B	5	5	6	10		
H	15	18	24.5	35		

★ L1=44 when gear ratio is 100.

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

★ Specification subject to change without notice.

PAE Specifications

Specifications		Stage	Ratio	PAE42	PAE60	PAE90	PAE115
Nominal Output Torque T _{2N}	N•m	1	3	9	28	85	210
			4	10	32	80	240
			5	11	35	95	260
			7	10	28	85	220
			9	8	23	75	210
			10	8	21	65	190
		Stage	Ratio	PAE42	PAE60/ PAE60T	PAE90/ PAE90T	PAE115T
		2	15	11	34	90	230
			20	10	32	80	240
			25	11	35	95	260
			30	-	-	-	260
			35	11	35	95	260
			40	-	-	-	260
			45	11	35	95	260
			49	10	-	-	-
			50	-	35	95	260
			63	10	-	-	-
			70	-	28	85	220
			100	8	21	65	190
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	3-100	4000	4000	3000	2500
Max. Input Speed n _{1max}	rpm	1,2	3-100	8000	6000	6000	5000
Standard Backlash P2	arcmin	1 2	3-10 15-100	≤ 9 ≤ 12	≤ 8 ≤ 10	≤ 7 ≤ 9	≤ 6 ≤ 8
Torsional Rigidity	N•m /arcmin	1,2	3-100	1.5	4.0	8.5	17
Max. Radial Load F _{2rB} ¹	N	1,2	3-100	760	1250	2030	4200
Max. Axial Load F _{2aB} ¹	N	1,2	3-100	410	700	1200	2600
Operating Temp.	°C	1,2	3-100	-10°C ~ +90°C			
Service Life	hr	1,2	3-100	20,000 (10,000 Continuous Operation)			
Efficiency	%	1 2	3-10 15-100	≥ 95% ≥ 90%			
Weight	kg	1 2	3-10 15-100	0.6 0.8	1.3 1.8/1.6	3.2 4.8/3.7	7.5 9.2
Mounting Position	-	1,2	3-100	Any Direction			
Noise Level ²	dBA/1m	1,2	3-100	61	63	66	67
Protection Class	-	1,2	3-100	IP65			
Lubrication	-	1,2	3-100	Synthetic Lubricant			
Inertia (J1)							
Stage	Ratio	unit		PAE42(φ8)	PAE60(φ14)	PAE90(φ19)	PAE115(φ24)
1	3	kg•cm ²		0.04	0.23	0.77	2.30
	4			0.03	0.21	0.67	1.92
	5			0.03	0.21	0.61	1.71
	7			0.03	0.21	0.60	1.65
	9/10			0.03	0.21	0.60	1.63
Stage	Ratio			PAE42(φ8)	PAE60(φ14)/ PAE60T(φ8)	PAE90(φ19)/ PAE90T(φ14)	PAE115T(φ19)
2	15/20/25			0.03	0.21 (0.03)	0.61(0.21)	0.61
	30/35/49			0.03	0.21 (0.03)	0.60(0.21)	0.60
	40/45/50/63/70/100			0.03	0.21 (0.03)	0.60(0.21)	0.60

* 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.