

PBE

The PBE Primary Series square mounting flange, cantilevered primary class planetary gears, in an in-line housing through sizes 90. Offers a light torque capacity, quiet operation with backlash as low as <7 arc-min. Maximum ratio 729:1, and 1000:1 available by demand.

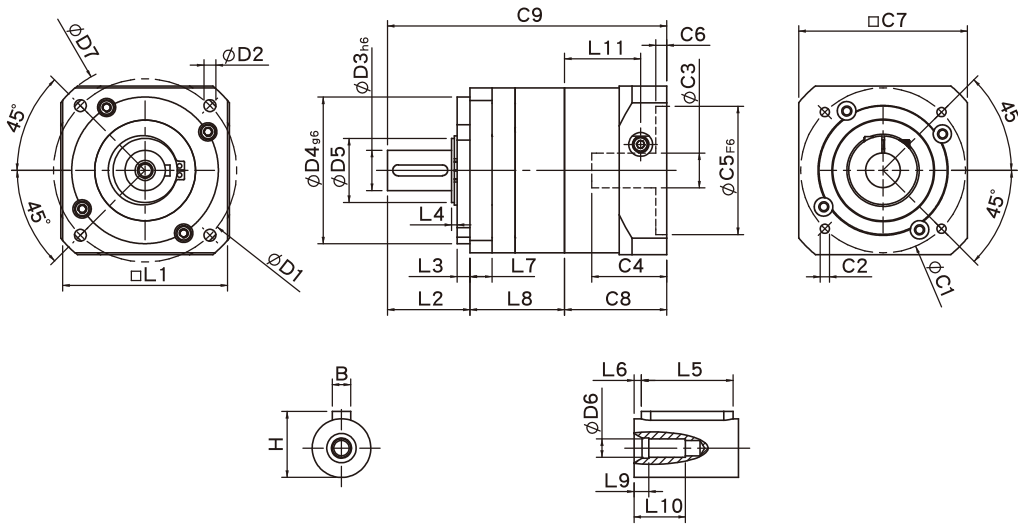


Frame Size (mm)	50, 70, 90
Ratio	3 : 1 - 729:1
Nominal Input Speed (rpm)	3,000 - 4,000
Max Input Speed (rpm)	6,000 - 8,000
Backlash (arc-min)	1 Stage : 7 - 9 2 Stages: 9 - 12 3 Stages : 12 - 15
Noise Level (dBA / 1m)	62 - 67

Features

- ▶ In-line Configuration.
- ▶ Output shaft, 13 mm through 22 mm diameter.
- ▶ Torque Capacity Range: 4.8 Nm through 58.6 Nm.
- ▶ Cantilevered Planet Carrier: with primary planet gear set.
- ▶ High performance, efficiencies and low acoustics.
- ▶ Wide Range of Ratios: 6 single stage ratios, 8 two stage ratios and 8 three stage ratios.
- ▶ Output Bearings deliver radial load capacity as high as 1700 N, and axial capacities up to 735 N.
- ▶ Square Servo and Step Motor input: accommodates 40 mm through 100 mm, with optional sizes available.

PBE Single Stage Dimensions



Specifications

Unit:mm

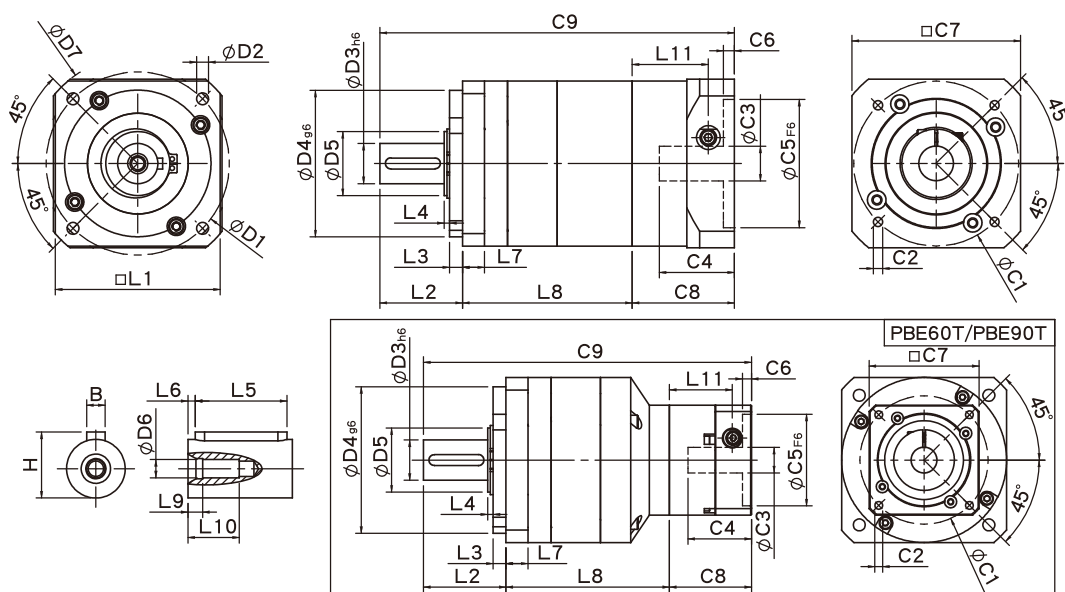
Dimensions	PBE42	PBE60	PBE90
D1	50	70	100
D2	3.4	5.5	6.5
D3 _{h6}	13	16	22
D4 _{g6}	35	50	80
D5	15	20	35
D6	M4x0.7P	M5x0.8P	M8x1.25P
D7	56	80	118
L1	42.6 (44) ¹	60	90
L2	26	36	45
L3	5.5	5	7
L4	2.6	2.7	3
L5	15	25	30
L6	2	2	3
L7	8	10	12
L8	32.4	49.6	54.4
L9	4	4	4.5
L10	14	16.5	20.5
L11	26.9	34.3	41.5
C1 ²	46	70	90
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P
C3 ²	$\leq 8/\leq 11$	$\leq 14/\leq 19$	$\leq 19/\leq 24/\leq 28$
C4 ²	26.5	33.5	41
C5 ^{2F6}	30	50	70
C6 ²	4	4	6
C7 ²	42.6	60	92
C8 ²	36.4	44.8	55.8
C9 ²	94.8	130.4	155.2
B	4	5	6
H	15	18	24.5

★ 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.

PBE Double Stage Dimensions



Specifications

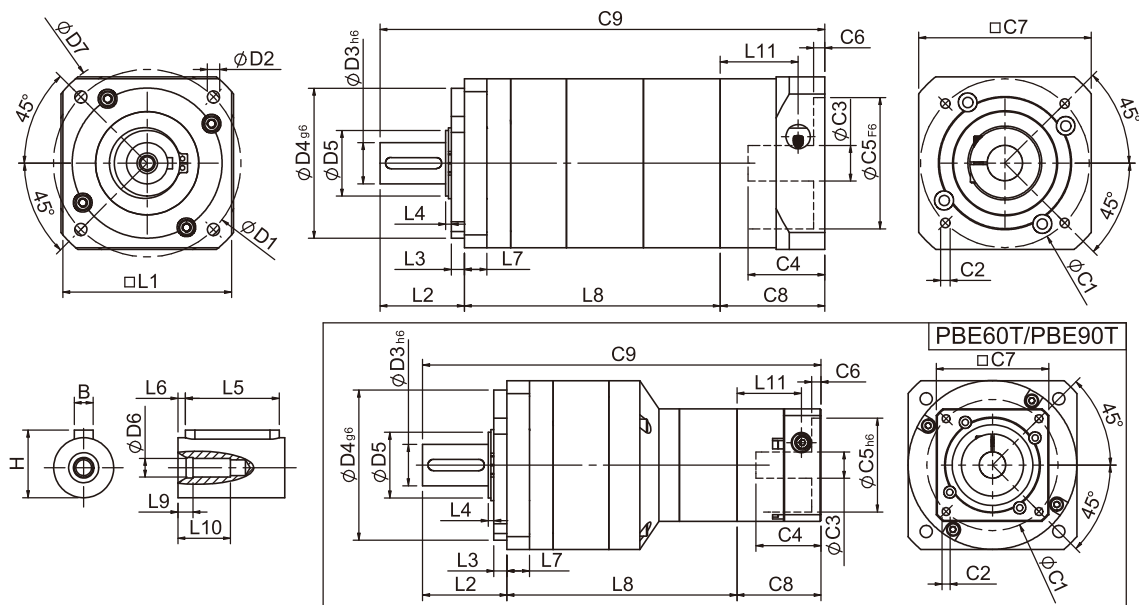
Unit:mm

Dimensions	PBE42	PBE60/PBE60T		PBE90/PBE90T	
D1	50	70		100	
D2	3.4	5.5		6.5	
D3 _{h6}	13	16		22	
D4 _{g6}	35	50		80	
D5	15	20		35	
D6	M4x0.7P	M5x0.8P		M8x1.25P	
D7	56	80		118	
L1	42.6	60		90	
L2	26	36		45	
L3	5.5	5		7	
L4	2.6	2.7		3	
L5	15	25		30	
L6	2	2		3	
L7	8	10		12	
L8	57.3	80.3	75.9	95.4	92
L9	4	4		4.5	
L10	14	16.5		20.5	
L11	26.9	34.3	26.9	41.55	34.3
C1 ²	46	70	46	90	70
C2 ²	M4x0.7P	M5x0.8P	M4x0.7P	M6x1.0P	M5x0.8P
C3 ²	≤8/≤11	≤14/≤19	≤8/≤11	≤19/≤24/≤28	≤14/≤19
C4 ²	26.5	33.5	26.5	41	33.5
C5 ^{2F6}	30	50	30	70	50
C6 ²	4	4	4	6	4
C7 ²	42.6	60	42.6	92	60
C8 ²	36.4	44.8	36.4	55.8	44.8
C9 ²	119.7	161.1	148.3	196.2	181.8
B	5	5		6	
H	15	18		24.5	

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

★ Specification subject to change without notice.

PBE Triple Stage Dimensions



Specifications

Unit:mm

Dimensions	PBE42	PBE60T	PBE90T
D1	50	70	100
D2	3.4	5.5	6.5
D3 _{h6}	13	16	22
D4 _{g6}	35	50	80
D5	15	20	35
D6	M4x0.7P	M5x0.8P	M8x1.25P
D7	56	80	118
L1	42.6	60	90
L2	26	36	45
L3	5.5	5	7
L4	2.6	2.7	3
L5	15	25	30
L6	2	2	3
L7	8	10	12
L8	82.2	100.8	122.7
L9	4	4	4.5
L10	14	16.5	20.5
L11	26.9	26.9	34.3
C1 ²	46	46	70
C2 ²	M4x0.7P	M4x0.7P	M5x0.8P
C3 ²	≤8/≤11	≤8/≤11	≤14/≤19
C4 ²	26.5	26.5	33.5
C5 ^{2F6}	30	30	50
C6 ²	4	4	4
C7 ²	42.6	42.6	60
C8 ²	36.4	36.4	44.8
C9 ²	144.6	173.2	212.5
B	5	5	6
H	15	18	24.5

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

★ Specification subject to change without notice.

PBE Specifications

Specifications		Stage	Ratio	PBE42	PBE60	PBE90
Nominal Output Torque T_{2N}	N•m	1	3	4.8	13.6	33.5
			4	6.3	21.6	58.6
			5	6.0	20.5	55.1
			7	5.6	19.2	51.8
			9	5.4	18.5	50.0
			10	5.4	17.0	48.0
		Stage	Ratio	PBE42	PBE60(T)	PBE90(T)
		2	15	4.8	13.6	33.5
			20	6.3	21.6	58.6
			25	6.0	20.5	55.1
			35	6.0	20.5	55.1
			45	6.0	20.5	55.1
			49	5.6	19.2	51.8
			63	5.6	19.2	51.8
			81	5.4	18.5	50.0
		Stage	Ratio	PBE42	PBE60(T)	PBE90(T)
		3	125	6.0	20.5	55.1
			175	6.0	20.5	55.1
			225	6.0	20.5	55.1
			245	6.0	20.5	55.1
			315	6.0	20.5	55.1
			405	6.0	20.5	55.1
			567	5.6	19.2	51.8
			729	5.4	18.5	50.0
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	3-729	4000	4000	3000
Max. Input Speed n_{1max}	rpm	1,2,3	3-729	8000	8000	6000
Backlash	arcmin	1	3-10	≤ 9	≤ 8	≤ 7
		2	15-81	≤ 12	≤ 10	≤ 9
		3	125-729	≤ 15	≤ 12	≤ 12
Torsional Rigidity	N•m /arcmin	1,2,3	3-729	0.8	2.0	7.0
Max. Radial Load F_{2RB}^1	N	1,2,3	3-729	540	1040	1700
Max. Axial Load F_{2aB}^1	N	1,2,3	3-729	360	720	735
Operating Temp.	°C		3-729	-10°C ~ +90°C		
Service Life	hr		3-729	20,000 (10,000 Continuous Operation)		
Efficiency	%	1	3-10	≥ 95%		
		2	15-81	≥ 90%		
		3	125-729	≥ 85%		
Weight	kg	1	3-10	0.5	1.2	3.1
		2	15-81	0.7	1.7/1.5	4.7/3.6
		3	125-729	0.9	2.0/1.8	5.3/4.0
Mounting Position	-	1,2,3	3-729	Any Direction		
Noise Level ²	dBA/1m	1,2,3	3-729	≤ 62	≤ 64	≤ 67
Protection Class	-	1,2,3	3-729	IP64		
Lubrication	-	1,2,3	3-729	Synthetic Lubricant		

* 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.

