

PHCH

High Radial Load Planetary Gearbox

The PHCH Series incorporates a robust combination of enhanced torque capacity and output shaft loading that exceeds even the most demanding packaging equipment's applications, without sacrificing mounting compatibility.

Wide range of ratios with 4 sizes up to 155mm



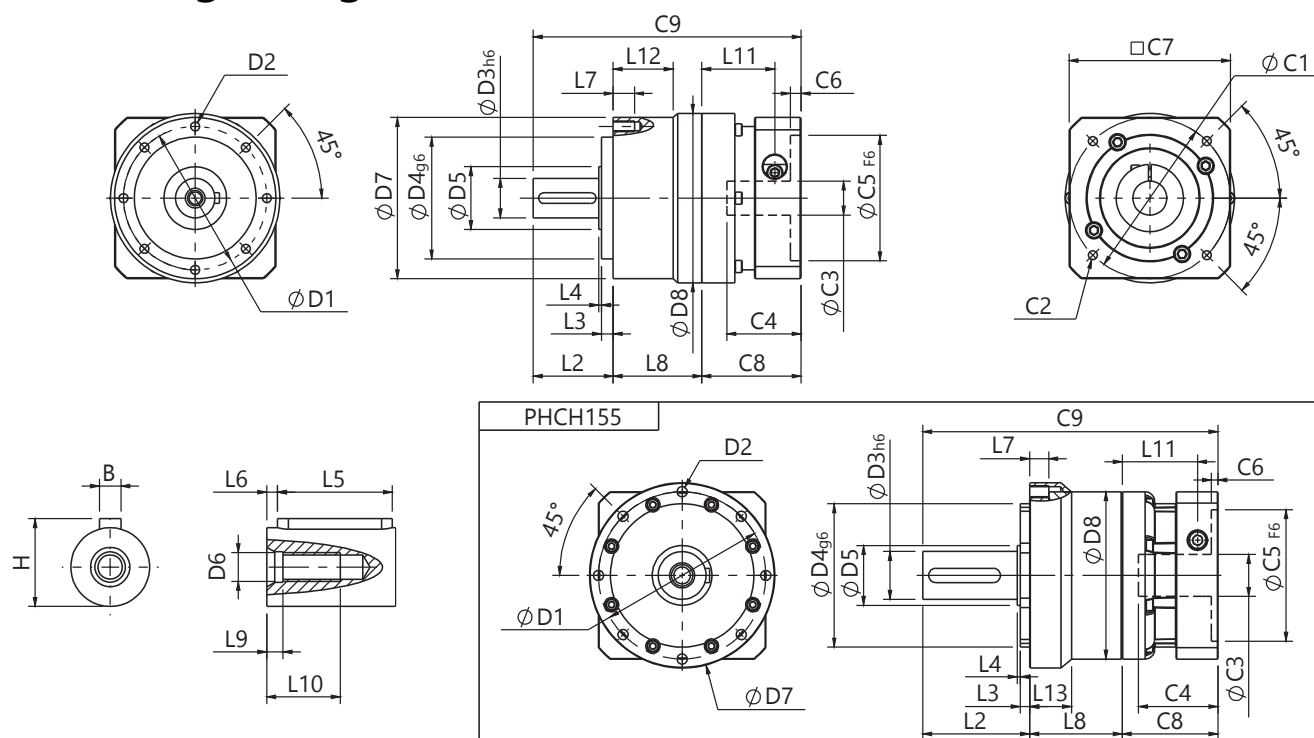
PHCH

Frame Size (mm)	70, 90, 120, 155
Ratio	8-single stage, 13-double stage
Nominal Input Speed(rpm)	3,000 - 4,000
Max Input Speed(rpm)	5,000 - 8,000
Backlash(arc-min)	4-8 single stage, 6-10 two stages

Features

- ▶ Perfect stiffness even under the highest bearing loads
- ▶ Radial load capacity from 2080N up to 11380N
- ▶ High output torque with particularly low-noise drive
- ▶ Service-life lubricant for maintenance-free operation
- ▶ IP65 sealing

PHCH Single Stage Dimensions



Specifications

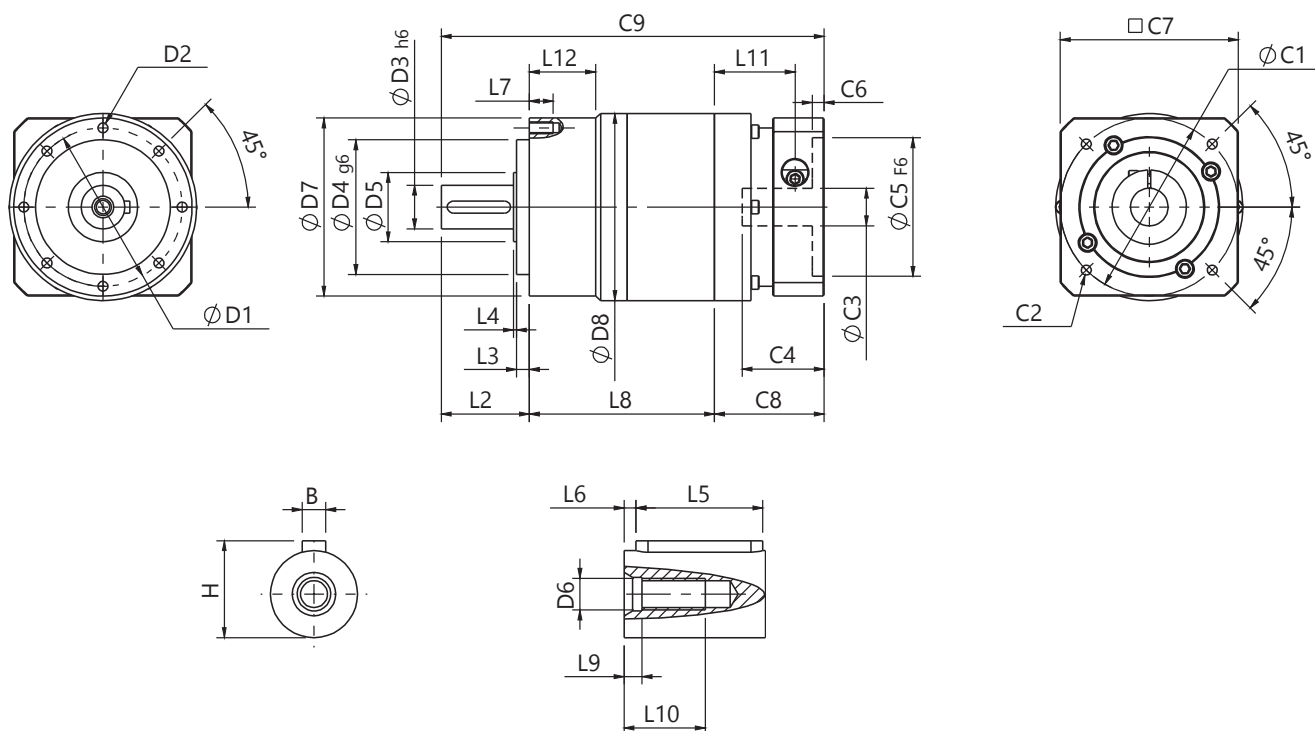
Unit: mm

Dimensions	PHCH70	PHCH90	PHCH120	PHCH155
D1	62	80	108	140
D2	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P
D3 _{h6}	16	22	32	40
D4 _{g6}	52	68	90	120
D5	34.4	46.4	59.6	80
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P
D7	70	90	120	155
D8	70	94.5	120	140
L2	36	44.5	60	97
L3	6	6.5	9	12
L4	1.5	2	3	3
L5	25	32	40	60
L6	2	3	5	5
L7	10	12	16	20
L8	45	58	64	86.5
L9	4	4.5	6	6
L10	16.5	20.5	30	38
L11	35.4	40.7	53.7	63
L12	-	42	-	-
L13	-	-	-	35
C1 ₂	70	90	115	145
C2 ₂	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 ₂	≤14/≤19	≤19/≤24	≤24/≤32/≤38	≤35/≤38
C4 ₂	37.6	41.4	51.3	66.5
C5 _{2F6}	50	70	95	110
C6 ₂	4.5	6	6	5.5
C7 ₂	60	90	115	140
C8 ₂	46.5	55.4	70	80
C9 ₂	127.5	157.9	204	263.5
B	5	6	10	12
H	18	24.5	35	43

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

★ Specification subject to change without notice.

PHCH Double Stage Dimensions-1



Specifications

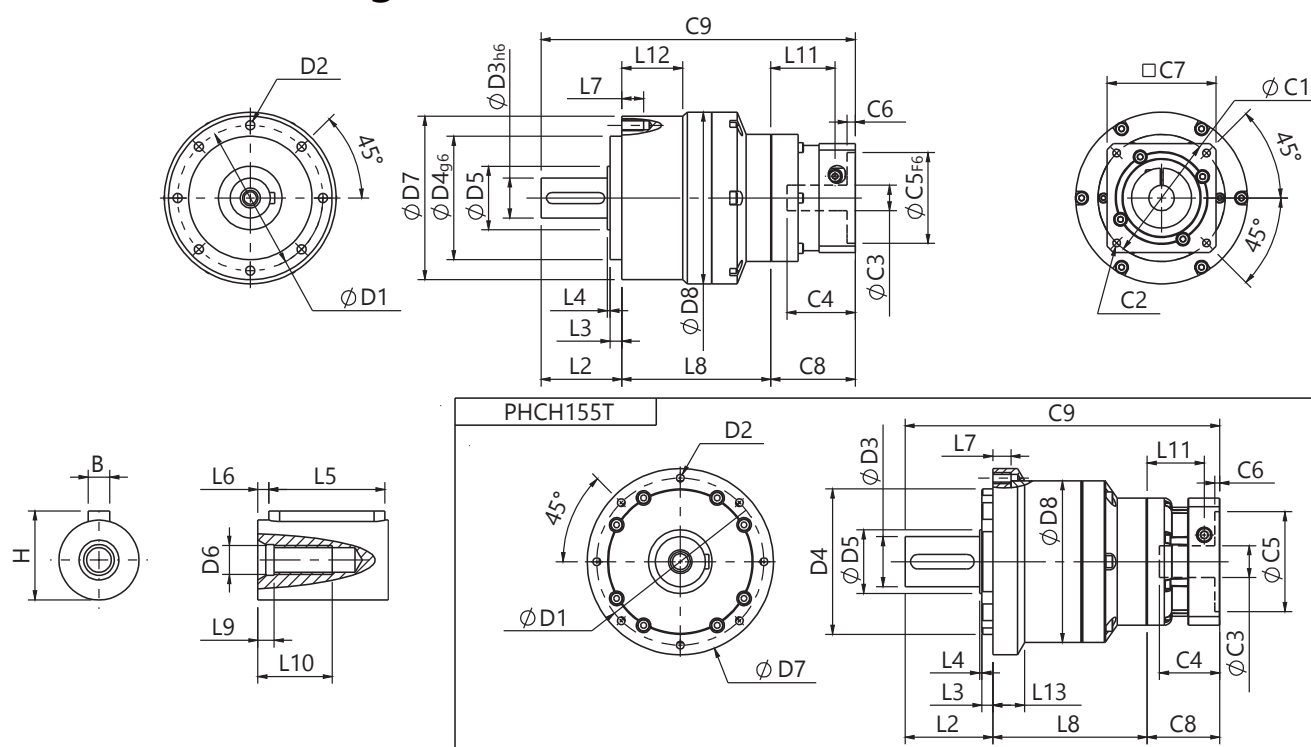
Unit: mm

Dimensions	PHCH70	PHCH90
D1	62	80
D2	M5x0.8P	M6x1.0P
D3 _{h6}	16	22
D4 _{g6}	52	68
D5	34.4	46.4
D6	M5x0.8P	M8x1.25P
D7	70	90
D8	70	94.5
L2	36	44.5
L3	6	6.5
L4	1.5	2
L5	25	32
L6	2	3
L7	10	12
L8	78	102
L9	4	4.5
L10	16.5	20.5
L11	35.4	40.7
L12	-	42
L13	-	-
C1 ₂	70	90
C2 ₂	M5x0.8P	M6x1.0P
C3 ₂	≤14/≤19	≤19/≤24
C4 ₂	37.6	41.4
C5 _{2F6}	50	70
C6 ₂	4.5	6
C7 ₂	60	90
C8 ₂	46.5	55.4
C9 ₂	160.5	201.9
B	5	6
H	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.

PHCH Double Stage Dimensions-2



Specifications

Unit: mm

Dimensions	PHCH70T	PHCH90T	PHCH120T	PHCH155T
D1	62	80	108	140
D2	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P
D3 _{h6}	16	22	32	40
D4 _{g6}	52	68	90	120
D5	34.4	46.4	59.6	80
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P
D7	70	90	120	155
D8	70	94.5	120	140
L2	36	44.5	70	97
L3	6	6.5	9	12
L4	1.5	2	3	3
L5	25	32	40	60
L6	2	3	5	5
L7	10	12	16	20
L8	73.5	90.5	106.5	136
L9	4	4.5	6	6
L10	16.5	20.5	30	38
L11	29	35.4	40.7	53.7
L12	-	42	-	-
L13	-	-	-	35
C1 ₂	46	70	90	115
C2 ₂	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P
C3 ₂	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38
C4 ₂	26.5	37.6	41.4	51.3
C5 _{2F6}	30	50	70	95
C6 ₂	4.1	4.5	6	6
C7 ₂	42	60	90	115
C8 ₂	38.1	46.5	55.4	70
C9 ₂	147.6	181.5	231.9	303
B	5	6	10	12
H	18	24.5	35	43

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

★ Specification subject to change without notice.

PHCH Specifications

Specifications		Stage	Ratio	PHCH-70	PHCH-90	PHCH-120	PHCH-155
Nominal Output Torque T _{2N}	N•m	1	3	53	130	200	340
			4	55	140	250	500
			5	54	140	330	600
			6	46	135	310	560
			7	44	125	300	530
			8	41	110	260	480
			9	37	95	230	430
			10	37	95	230	430
		Stage	Ratio	PHCH70/ PHCH-70T	PHCH-90/ PHCH-90T	PHCH-120T	PHCH-155T
		2	15	53	130	200	520
			20	55	140	250	550
			25	54	140	330	600
			30	54	140	330	600
			35	54	140	330	600
			40	54	140	330	600
			45	54	140	330	600
			50	54	140	330	600
			60	46	135	310	560
			70	44	125	300	530
			80	41	110	260	480
			90	37	95	230	430
			100	37	95	230	430
Max. Output Torque T _{2B}	N•m			60% of Emergency Stop Torque			
Emergency Stop Torque T _{2NOT}	N•m		3.0 Times of Nominal Output Torque				
Nominal Input Speed n _{1N}	rpm	1,2	3-100	4000	4000	3500	3000
Max. Input Speed n _{1max}	rpm	1,2	3-100	8000	8000	6000	5000
Micro Backlash P0	arcmin	1 2	3-10 12-100	≤ 4 ≤ 6	≤ 4 ≤ 6	≤ 3 ≤ 5	≤ 3 ≤ 5
Precision Backlash P1	arcmin	1 2	3-10 12-100	≤ 6 ≤ 8	≤ 6 ≤ 8	≤ 5 ≤ 7	≤ 5 ≤ 7
Standard Backlash P2	arcmin	1 2	3-10 12-100	≤ 8 ≤ 10	≤ 8 ≤ 10	≤ 7 ≤ 9	≤ 7 ≤ 9
Torsional Rigidity	N•m /arcmin	1,2	3-100	7	14	25	50
Max. Radial Load F _{2rB 1}	N	1,2	3-100	2080	5800	8410	11380
Max. Axial Load F _{2aB 1}	N	1,2	3-100	1550	4200	5200	8830
Operating Temp.	°C		3-100	-10°C ~ +90°C			
Service Life	hr		3-100	30,000 (15,000 Continuous Operation)			
Efficiency	%	1 2	3-10 12-100	≥ 97% ≥ 94%			
Weight	kg	1 2	3-10 12-100	1.8 2.4/2.0	3.6 5.7/4.0	8.0 9.7	16.5 19.4
Mounting Position	-	1,2	3-100	Any Direction			
Noise Level ₂	dB(A)/1m	1,2	3-100	58	60	63	65
Protection Class	-	1,2	3-100	IP65			
Lubrication	-	1,2	3-100	Synthetic Lubricant			

Inertia (J1)

Stage	Ratio	unit	PHCH-70	PHCH-90	PHCH-120	PHCH-155
1	3	kg•cm ²	0.23	0.97	2.35	10.00
	4		0.18	0.67	1.66	7.17
	5		0.17	0.65	1.50	6.52
	6/7/8		0.14	0.60	1.45	6.17
	9/10		0.14	0.58	1.41	6.10
Stage	Ratio		PHCH-70(T)	PHCH-90(T)	PHCH-120T	PHCH-155T
2	15/20/25		0.17 (0.02)	0.65 (0.17)	0.65	1.50
	30/35/40		0.14 (0.02)	0.60 (0.14)	0.60	1.45
	45/50/60/70/80/90/100		0.14 (0.02)	0.58 (0.14)	0.58	1.41

* 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.