PGSH

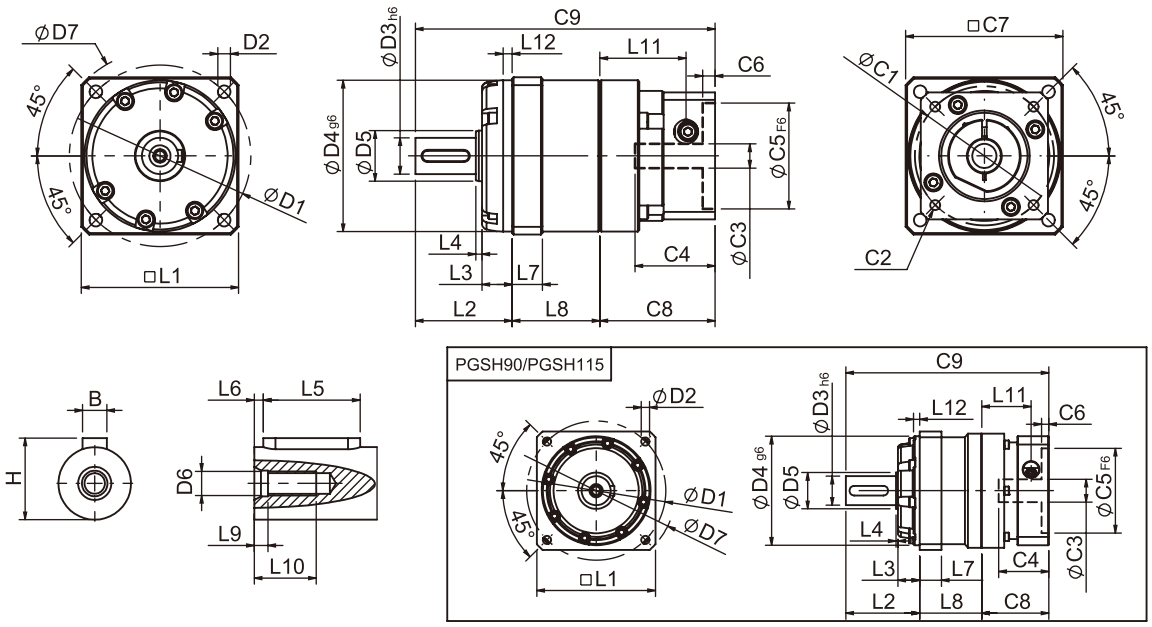
PGSH in-line planetary gearheads provide integration between superior operating performance and cost effectiveness. One-piece planet carrier/output shaft and newly designed gear profile benefit higher output torque, precision, loading capacity and lower noise level. High quality gears and components are utilized to create compact and rigid unit with low backlash and maintenance-free operation. 2 levels of precision are available with max frame size 142 mm. Adapters for all servo motors.

Frame Size (mm)	42, 60, 90, 115, 142
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 : 5 - 8 2 Stages : 7 - 10
Noise Level (dBA / 1m)	58 - 67

Features

- ▶ One-piece planet carrier/output shaft, high torsional rigidity and loading capacity.
- ▶ One-piece compact ring gear design, high precision and output torque.
- ▶ Alloy steel precision gears, low backlash, low noise, high wear resistance.
- ▶ Lubricated for life and IP65 sealing, maintenance free.
- ▶ Adapters for all servo motors.

PGSH Single Stage Dimensions



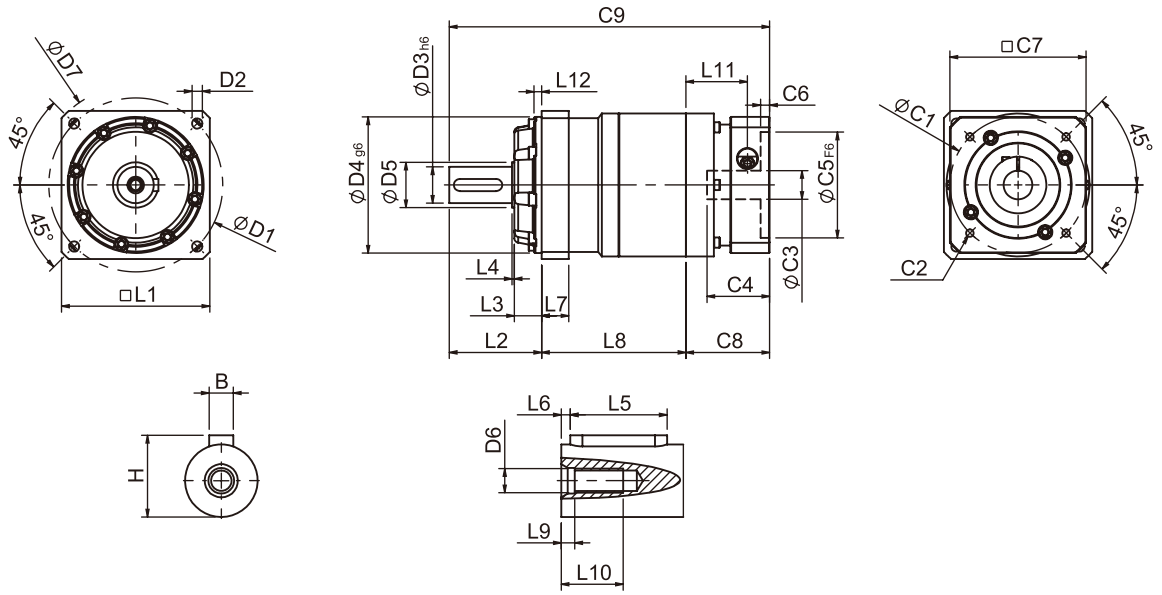
Specifications Unit:mm

Dimensions	PGSH42	PGSH60	PGSH90	PGSH115
D1	60	90	115	135
D2	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P
$D3_{h6}$	12	19	24	32
$D4_{g6}$	50	70	90	110
D5	16.7	20	30	45
D6	M4x0.7P	M6x1.0P	M8x1.25P	M12x1.75P
D7	70	104	132	164
L1	52	78	98	120
L2	32	50	61	75
L3	10	17	18	14.5
L4	2	3	1.5	5.5
L5	16	25	32	40
L6	2	3	3	5
L7	10	12	18	18.5
L8	29	37.8	51.4	63.8
L9	4	4	4.5	6
L10	12	16.5	20.5	30
L11	28.5	35.5	40.7	53.8
L12	3	4	5	5
$C1^{2}$	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
$C5^{2}{}_{F6}$	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
$C9^{2}$	99.1	134.3	167.8	208.8
B	4	6	8	10
H	13.5	21.5	27	35

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

★ Specification subject to change without notice.

PGSH Double Stage Dimensions-1



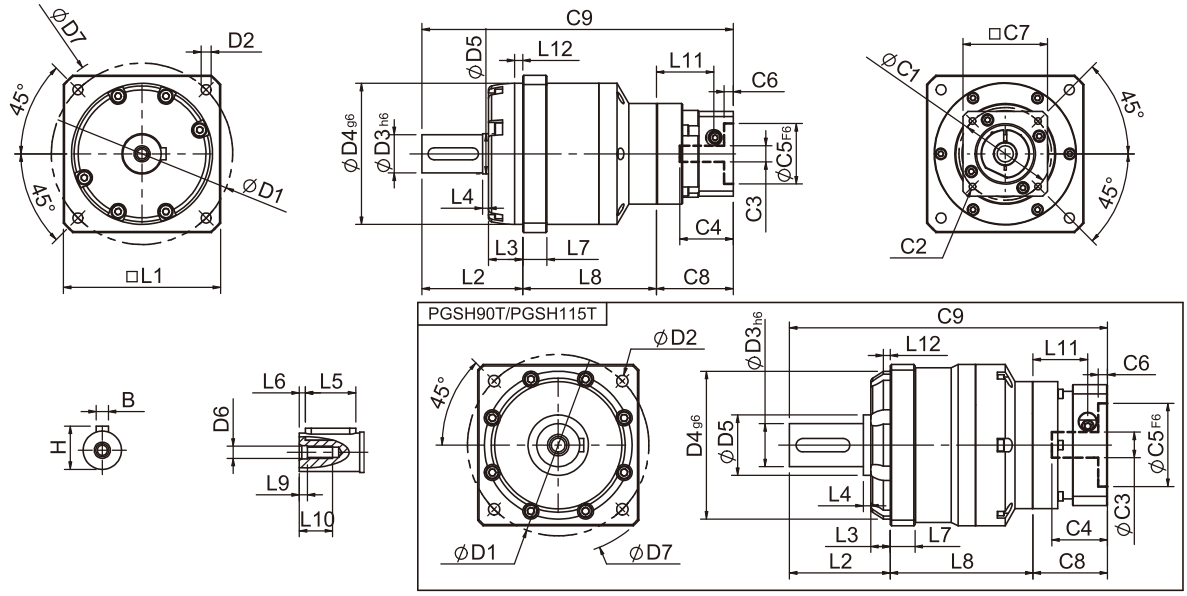
Specifications Unit:mm

Dimensions	PGSH42	PGSH60	PGSH90
D1	60	90	115
D2	M5x0.8P	M6x1.0P	M8x1.25P
$D3_{h6}$	12	19	24
$D4_{g6}$	50	70	90
D5	16.7	20	30
D6	M4x0.7P	M6x1.0P	M8x1.25P
D7	70	104	132
L1	52	78	98
L2	32	50	61
L3	10	17	18
L4	2	3	1.5
L5	16	25	32
L6	2	3	3
L7	10	12	18
L8	56	70.8	95.4
L9	4	4	4.5
L10	12	16.5	20.5
L11	28.5	35.5	40.7
L12	3	4	5
$C1^{2}$	46	70	90
$C2^{2}$	M4x0.7P	M5x0.8P	M6x1.0P
$C3^{2}$	≦8/≦11	≦14/≦19	≦19/≦24
$C4^{2}$	26.5	37.6	41.4
$C5^{2}{}_{F6}$	30	50	70
$C6^{2}$	4.1	4.5	6
$C7^{2}$	42	60	90
$C8^{2}$	38.1	46.5	55.4
$C9^{2}$	126.1	167.3	211.8
B	4	6	8
H	13.5	21.5	27

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

★ Specification subject to change without notice.

PGSH Double Stage Dimensions-2



Specifications Unit:mm

Dimensions	PGSH60T	PGSH90T	PGSH115T
D1	90	115	135
D2	M6x1.0P	M8x1.25P	M10x1.5P
$D3_{h6}$	19	24	32
$D4_{g6}$	70	90	110
D5	20	30	45
D6	M6x1.0P	M8x1.25P	M12x1.75P
D7	104	132	164
L1	78	98	120
L2	50	61	75
L3	17	18	14.5
L4	3	1.5	5.5
L5	25	32	40
L6	3	3	5
L7	12	18	18.6
L8	66.3	83.9	106.5
L9	4	4.5	6
L10	16.5	20.5	30
L11	28.5	35.5	40.7
L12	4	5	5
$C1^{2}$	46	70	90
$C2^{2}$	M4x0.7P	M5x0.8P	M6x1.0P
$C3^{2}$	≦8/≦11	≦14/≦19	≦19/≦24
$C4^{2}$	26.5	37.6	41.4
$C5^{2}{}_{F6}$	30	50	70
$C6^{2}$	4.1	4.5	6
$C7^{2}$	42	60	90
$C8^{2}$	38.1	46.5	55.4
$C9^{2}$	154.4	191.4	236.7
B	6	8	10
H	21.5	27	35

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

★ Specification subject to change without notice.

PGSH Specifications

Specifications		Stage	Ratio	PGSH-42A	PGSH-42	PGSH-60	PGSH-90	PGSH-115	PGSH-142
Nominal Output Torque T_{2N}	N · m	1	3	8	15	53	145	290	520
			4	10	17	55	150	300	550
			5	10	16	54	140	290	600
			6	10	15	46	135	280	560
			7	10	14	44	125	270	530
			8	9	12	41	110	240	480
			9	9	11	37	95	220	430
			10	9	11	37	95	220	430
		Stage	Ratio	PGSH-42A	PGSH-42	PGSH-60 / PGSH-60T	PGSH-90 / PGSH-90T	PGSH-115T	PGSH-142T
		2	15	8	15	53	145	290	520
			20	10	17	55	150	300	550
			25	10	16	54	140	290	600
			30	10	16	54	140	290	600
			35	10	16	54	140	290	600
			40	10	16	54	140	290	600
			45	10	16	54	140	290	600
			50	10	16	54	140	290	600
			60	10	15	46	135	280	560
			70	10	14	44	125	270	530
			80	9	12	41	110	240	480
			90	9	11	37	95	220	430
			100	9	11	37	95	220	430
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	4000	3000	3000	2500
Max. Input Speed n_{1max}	rpm	1,2	3-100	8000	8000	8000	6000	6000	5000
Precision Backlash P1	arcmin	1	3-10	≦6	≦6	≦6	≦6	≦5	≦5
		2	12-100	≦8	≦8	≦8	≦8	≦7	≦7
Standard Backlash P2	arcmin	1	3-10	≦8	≦8	≦8	≦8	≦7	≦7
		2	12-100	≦10	≦10	≦10	≦10	≦9	≦9
Torsional Rigidity	N · m /arcmin	1,2	3-100	2.5	2.5	6	12	23	50
Max. Radial Load F_{2rB} [1]	N	1,2	3-100	1120	1120	1720	2800	4600	8300
Max. Axial Load F_{2aB} [1]	N	1,2	3-100	520	520	830	1730	2950	4670
Operating Temp.	℃		3-100	-10℃~+90℃					
Service Life	hr		3-100	20,000 (10,000 Continuous operation)					
Efficiency	%	1	3-10	≧ 97%					
		2	12-100	≧ 94%					
Weight	kg	1	3-10	0.6	0.6	1.3	3.5	7.8	16.1
		2	12-100	0.9	0.9	2.0/1.6	5.6/3.9	9.5	19
Mounting Position	-	1,2	3-100	Any Direction					
Noise Level [2]	dBA/1m	1,2	3-100	58	58	60	63	65	67
Protection Class	-	1,2	3-100	IP65					
Lubrication	-	1,2	3-100	Synthetic Lubricant					

Inertia (J1)

Stage	Ratio	unit	PGSH-42A	PGSH-42	PGSH-60	PGSH-90	PGSH-115	PGSH-142
1	3	$Kg \cdot cm^2$	0.03	0.03	0.23	0.97	2.35	10.00
	4		0.02	0.02	0.18	0.67	1.66	7.17
	5		0.02	0.02	0.17	0.65	1.50	6.52
	6/7/8		0.02	0.02	0.14	0.60	1.45	6.17
	9/10		0.02	0.02	0.14	0.58	1.41	6.10
Stage	Ratio		PGSH-42A	PGSH-42	PGSH-60(T)	PGSH-90(T)	PGSH-115T	PGSH-142T
2	15/20/25		0.02	0.02	0.17(0.02)	0.65(0.17)	0.65	1.50
	30/35/40		0.02	0.02	0.14(0.02)	0.60(0.14)	0.60	1.45
	45/50/60/70/80/90/100		0.02	0.02	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.