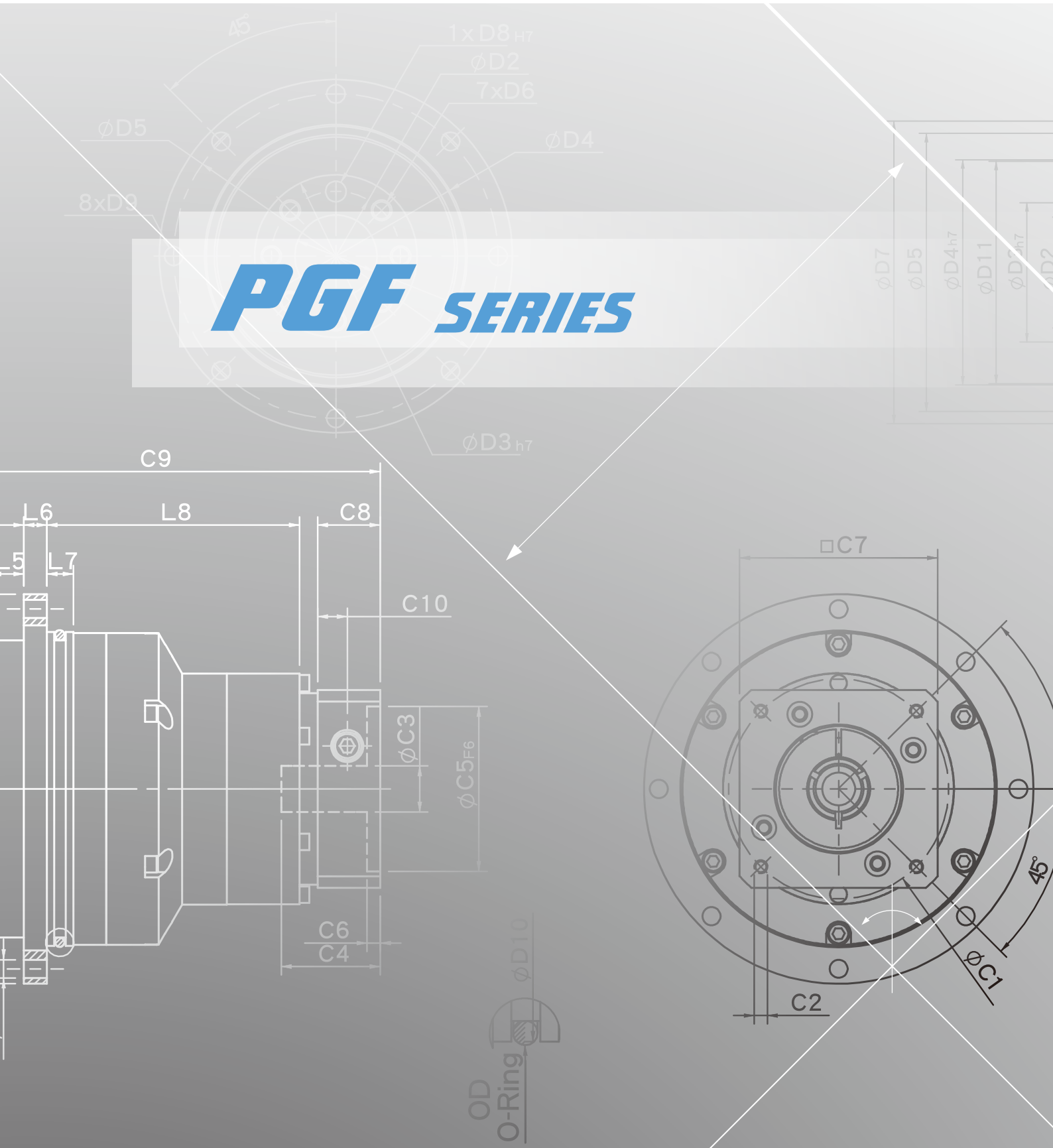
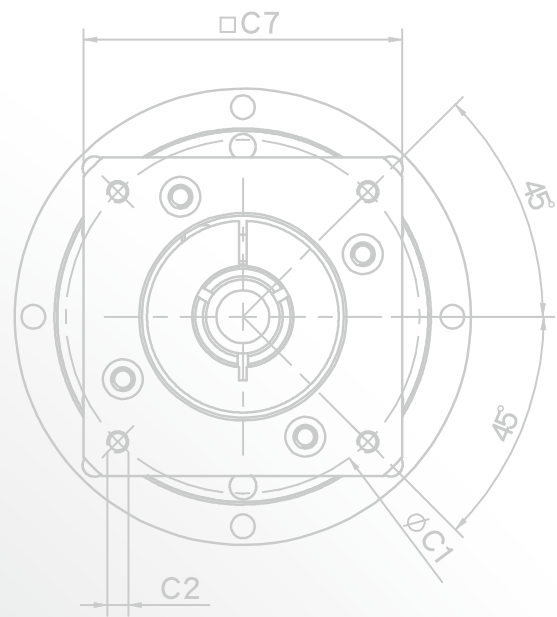
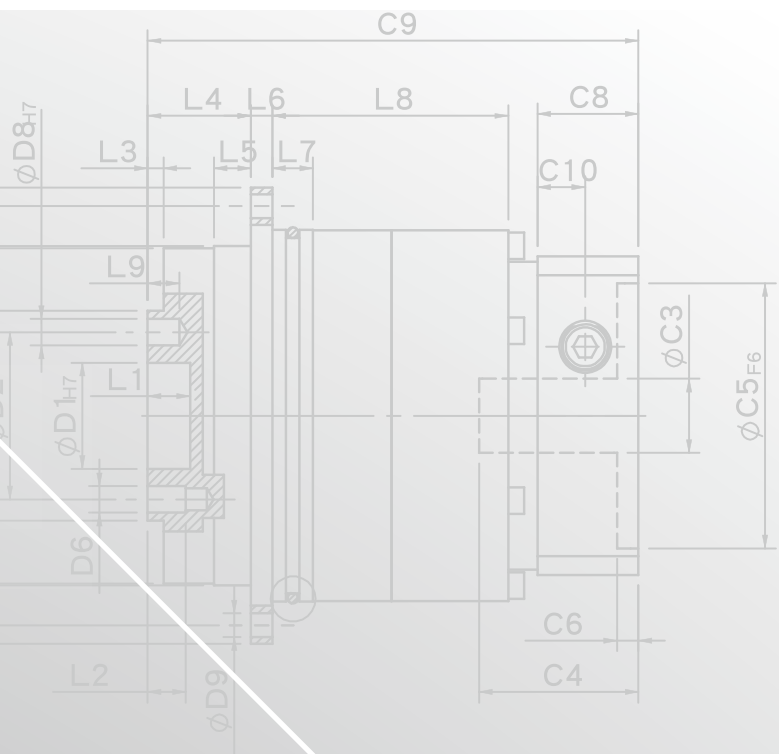


# PGF SERIES

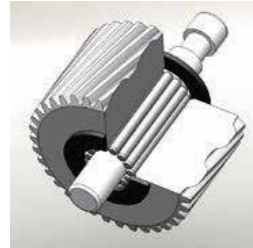




OD  
O-Ring  $\text{ØD10}$

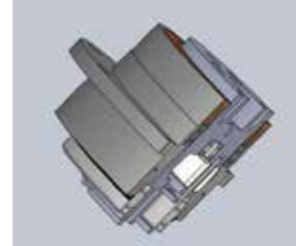
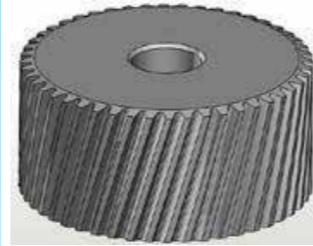


PGF SERIES FEATURES



Planet gear transmission interface equipped with needle bearings, full needle roller bearings aligned without retainer achieve maximum exposure but smallest gap tolerances. Enhance over-all gear structure rigid and output torque.

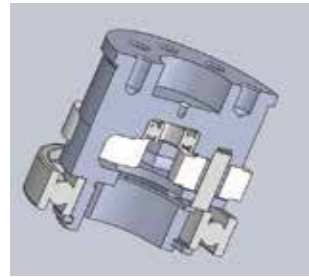
Alloy steel gear with unique heat treatment. Additionally, with gear grinding processing to get the best accuracy, high wear resistance and high impact toughness.



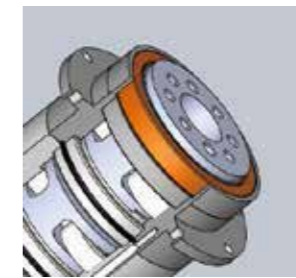
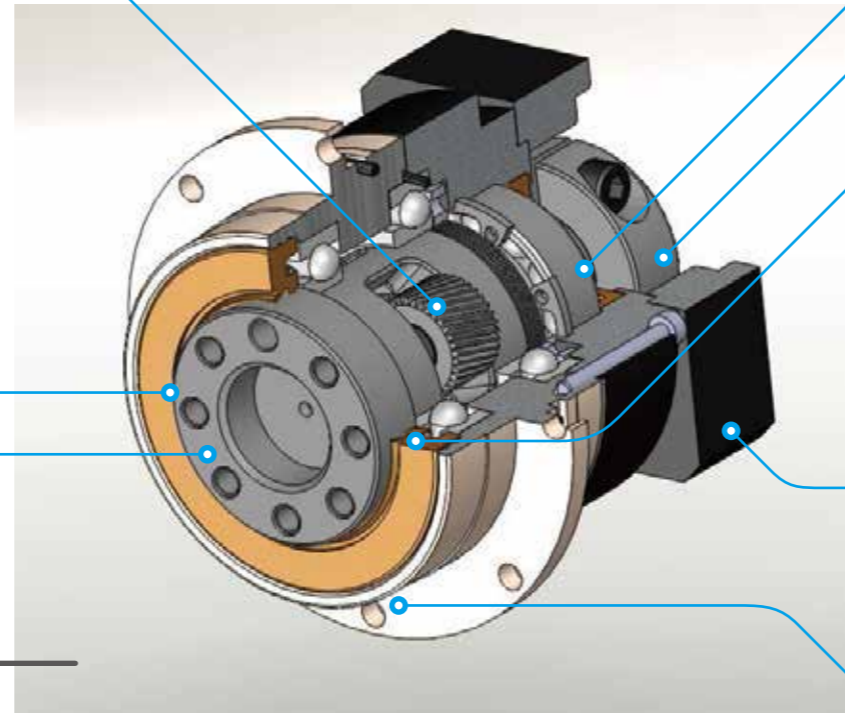
The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.



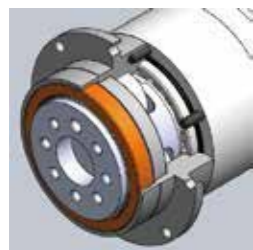
Input-end and motor shaft are coupled through a dynamic balanced collar clamping mechanism to ensure connection interface concentricity and zero slip power transmission at high speed.



Planetary arm bracket and output shaft are one-piece constructed, setting bearing apart for larger span to reach the largest reverse rigid and contribute high axis radial load capacity.



High-tech oil seal design on the upper lip guard against dust intruder, lower lip to guard against oil leak. Protection grade IP65 safeguards fully avoid leaking problem, and given it maintenance-free.

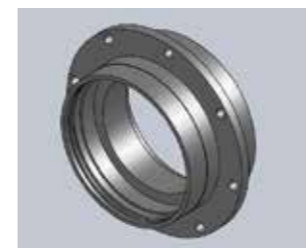


Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan. Hollow out-put shaft connects perfectly with circular flange drastically reducing the installation space.

**PGF Series overall design suitable for combination operation with servo motor high-speed input and achieves maximum torque output. Hollow out-put shaft connects perfectly with circular flange drastically reducing the installation space. Precision gear design and gear processing create a planetary gearhead with low backlash operation, high efficiency, low noise and long lifespan.**



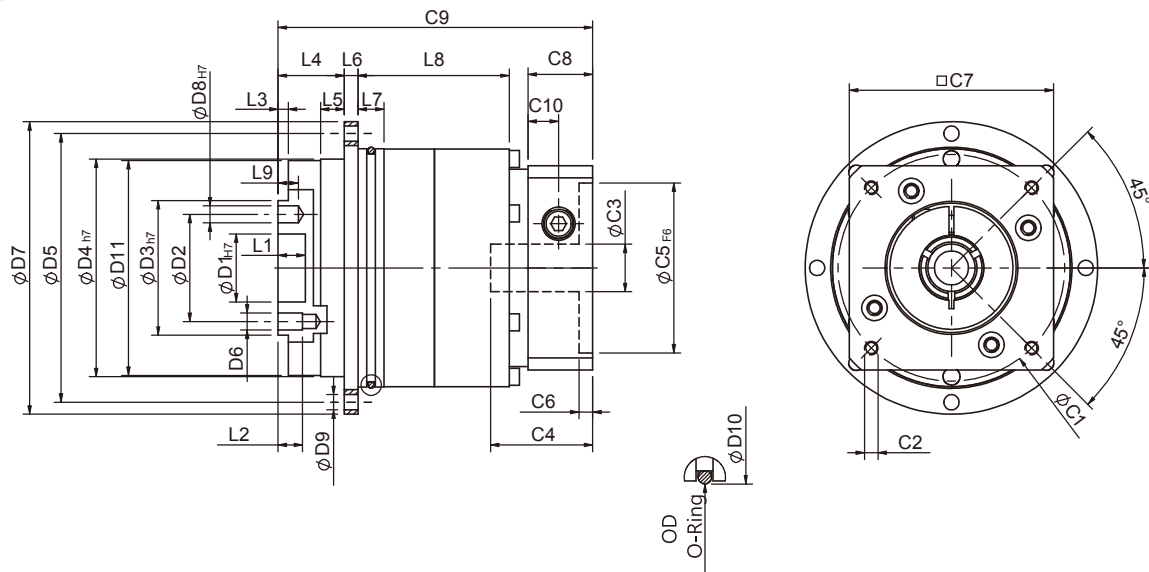
Advanced motor bracket design coupled with the input shaft bushing is easy to mount to any servo or stepper motor.



Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment. The gear box and internal gear ring are one-piece constructed, and then processed with advanced Germany gear shaper machinery for high-precision, high torque and abrade consumption.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty. 產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

## PGF Single Stage Dimensions



## Specifications

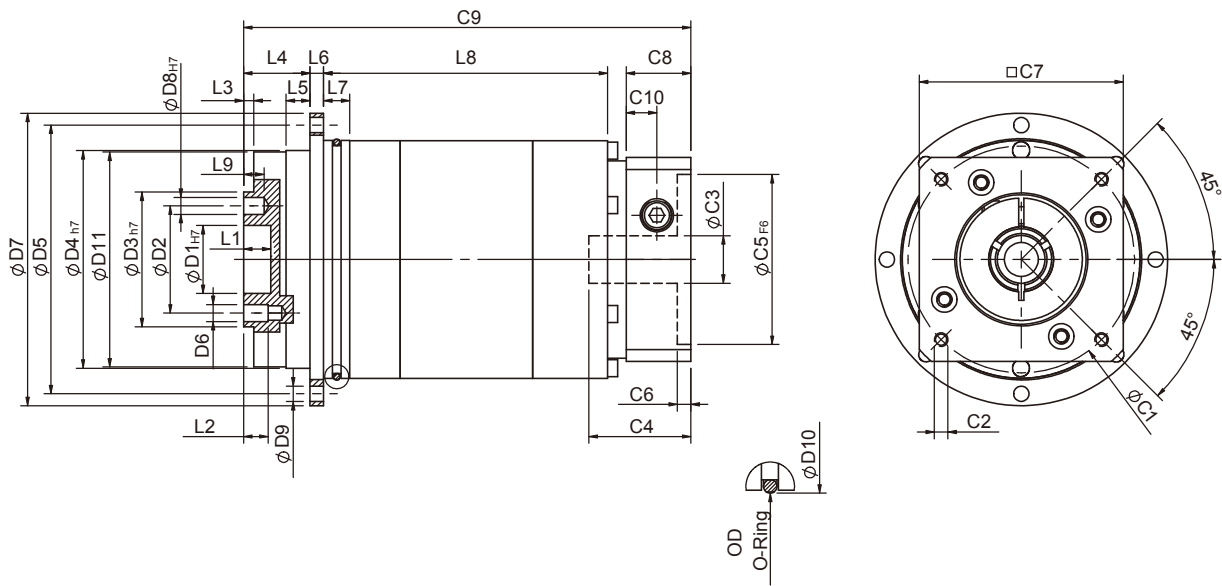
Unit:mm

Dimensions	PGF42	PGF60	PGF90	PGF115	PGF142
D1 <sub>H7</sub>	12	20	31.5	40	50
D2	20	31.5	50	63	80
D3 <sub>h7</sub>	28	40	63	80	100
D4 <sub>h7</sub>	47	64	90	110	140
D5	67	79	109	135	168
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P
D7	72	86	118	145	179
D8 <sub>H7</sub>	3	5	6	6	8
D9	3.4	4.5	5.5	5.5	6.6
D10	60	70	95	120	152
D11	46.2	63.2	89.2	109.2	139.2
L1	4	8	12	12	12
L2	6	7.2	12	13.5	16
L3	3	3	6	6	6
L4	19.5	19.5	29	29	38
L5	7	7	10	10	14.6
L6	4	4	7	8	10
L7	5	7.7	8	10	12
L8	25	29.5	35	50.5	65
L9	4	6	7	7	7
C1 <sup>2</sup>	46	70	90	115	145
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38	≤35/≤38
C4 <sup>2</sup>	28.6	37.5	41.7	51.1	66.7
C5 <sup>2</sup> <sub>F6</sub>	30	50	70	95	110
C6 <sup>2</sup>	4.1	4.5	6	6	5.5
C7 <sup>2</sup>	42	60	90	115	140
C8 <sup>2</sup>	17	20	26	30	35
C9 <sup>2</sup>	75.3	85.5	105	127.5	168.5
C10 <sup>2</sup>	7.4	9	11.3	13.9	17.8
OD	56x2	66x2	90x3	110x3	145x3

★ C1~C10 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGF Double Stage Dimensions-1



## Specifications

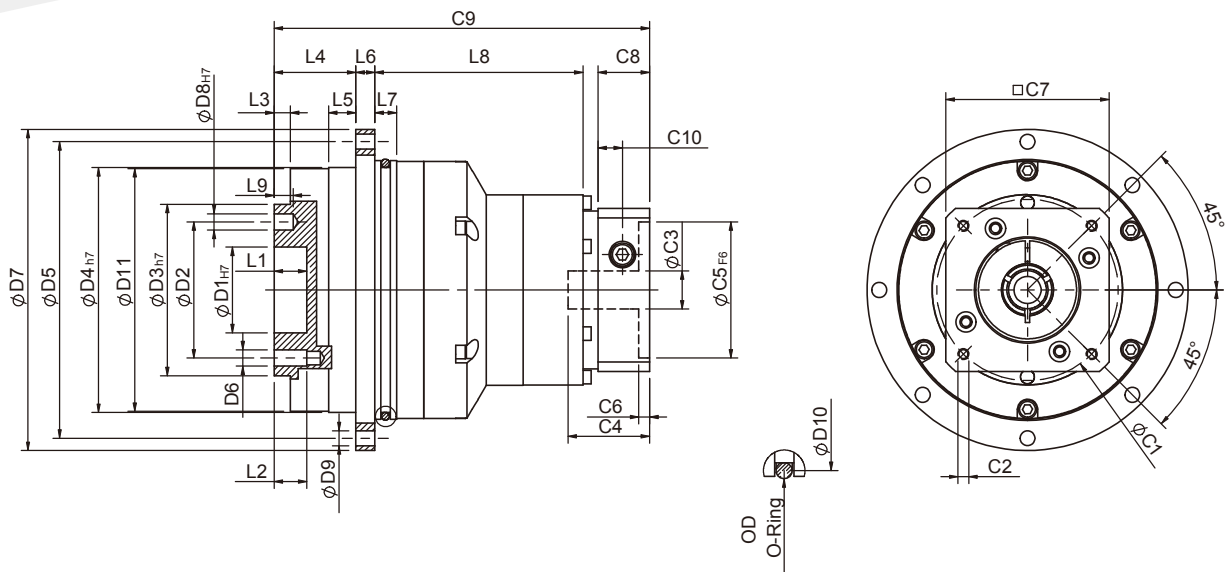
Unit:mm

Dimensions	PGF42	PGF60	PGF90
D1 <sub>H7</sub>	12	20	31.5
D2	20	31.5	50
D3 <sub>h7</sub>	28	40	63
D4 <sub>h7</sub>	47	64	90
D5	67	79	109
D6	M3x0.5P	M5x0.8P	M6x1.0P
D7	72	86	118
D8 <sub>H7</sub>	3	5	6
D9	3.4	4.5	5.5
D10	60	70	95
D11	46.2	63.2	89.2
L1	4	8	12
L2	6	7.2	12
L3	3	3	6
L4	19.5	19.5	29
L5	7	7	10
L6	4	4	7
L7	5	7.7	8
L8	54.5	68.5	80
L9	4	6	7
C1 <sup>2</sup>	46	70	90
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24
C4 <sup>2</sup>	28.6	37.5	41.7
C5 <sup>2</sup> <sub>F6</sub>	30	50	70
C6 <sup>2</sup>	4.1	4.5	6
C7 <sup>2</sup>	42	60	90
C8 <sup>2</sup>	17	20	26
C9 <sup>2</sup>	103	124.5	149.1
C10 <sup>2</sup>	7.4	9	11.3
OD	56x2	66x2	90x3

★ C1~C10 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGF Double Stage Dimensions-2



## Specifications

Unit:mm

Dimensions	PGF60T	PGF90T	PGF115T	PGF142T
D1 <sub>H7</sub>	20	31.5	40	50
D2	31.5	50	63	80
D3 <sub>h7</sub>	40	63	80	100
D4 <sub>h7</sub>	64	90	110	140
D5	79	109	135	168
D6	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P
D7	86	118	145	179
D8 <sub>H7</sub>	5	6	6	8
D9	4.5	5.5	5.5	6.6
D10	70	95	120	152
D11	63.2	89.2	109.2	139.2
L1	8	12	12	12
L2	7.2	12	13.5	16
L3	3	6	6	6
L4	19.5	29	29	38
L5	7	10	10	14.6
L6	4	7	8	10
L7	7.7	8	10	12
L8	61.2	68	89.5	110
L9	6	7	7	7
C1 <sup>2</sup>	46	70	90	115
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38
C4 <sup>2</sup>	28.6	37.5	41.7	51.1
C5 <sup>2</sup> <sub>F6</sub>	30	50	70	95
C6 <sup>2</sup>	4.1	4.5	6	6
C7 <sup>2</sup>	42	60	90	115
C8 <sup>2</sup>	17	20	26	30
C9 <sup>2</sup>	109.7	136.5	159.6	198
C10 <sup>2</sup>	7.4	9	11.3	13.9
OD	66x2	90x3	110x3	145x3

★ C1~C10 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.





## PGF Specifications Table

Specifications		Stage	Ratio	PGF-42	PGF-60	PGF-90	PGF-115	PGF-142
Nominal Output Torque $T_{2N}$	N • m	1	3	-	40	105	180	340
			4	16	43	110	240	500
			5	17	50	130	290	600
			7	14	44	125	270	530
			10	11	37	95	220	430
		Stage	Ratio	PGF-42	PGF-60(T)	PGF-90(T)	PGF-115T	PGF-142T
		2	15	-	40	105	180	600
			20	16	43	110	240	600
			25	17	50	130	290	600
			30	17	50	130	290	600
			35	17	50	130	290	600
			40	17	50	130	290	600
			50	17	50	130	290	600
			70	14	44	125	270	530
100	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	5000	5000	4000	4000	3000
Max. Input Speed $n_{1max}$	rpm	1,2	3-100	10000	10000	8000	8000	5000
Micro Backlash P0	arcmin	1	3-10	≤ 3	≤ 3	≤ 3	≤ 1	≤ 1
		2	12-100	≤ 5	≤ 5	≤ 5	≤ 3	≤ 3
Precision Backlash P1	arcmin	1	3-10	≤ 5	≤ 5	≤ 5	≤ 3	≤ 3
		2	12-100	≤ 7	≤ 7	≤ 7	≤ 5	≤ 5
Standard Backlash P2	arcmin	1	3-10	≤ 7	≤ 7	≤ 7	≤ 5	≤ 5
		2	12-100	≤ 9	≤ 9	≤ 9	≤ 7	≤ 7
Torsional Rigidity	N • m /arcmin	1,2	3-100	6	12	28	75	145
Max. Bending Moment $M_{2kB}^1$	N • m	1,2	3-100	22.5	36	76	140	950
Max. Axial Load $F_{2aB}^1$	N	1,2	3-100	465	635	1060	1580	6400
Operating Temp.	°C	-10 °C ~ +90 °C						
Service Life	hr	20,000 (10,000 Continuous operation)						
Efficiency	%	1	3-10	≥ 97%				
		2	12-100	≥ 94%				
Weight	kg	1	3-10	0.7	1.4	3.2	6.0	13.6
		2	12-100	1.1	2.2(1.7)	5.0(4.0)	7.9	17.9
Mounting Position	-	1,2	3-100	Any direction				
Noise Level <sup>2</sup>	dB(A)/1m	1,2	3-100	56	58	60	63	65
Protection Class	-	1,2	3-100	IP65				
Lubrication	-	1,2	3-100	Synthetic Lubricant				
Inertia (J1)								
Stage	Ratio	unit		PGF-42	PGF-60	PGF-90	PGF-115	PGF-142
1	3	Kg • cm <sup>2</sup>		-	0.19	0.72	2.35	9.05
	4			0.02	0.18	0.67	1.66	7.17
	5			0.02	0.17	0.65	1.50	6.52
	7			0.02	0.14	0.60	1.45	6.17
	10			0.02	0.14	0.58	1.41	6.10
Stage	Ratio			PGF-42	PGF-60(T)	PGF-90(T)	PGF-115T	PGF-142T
2	15/20/25			0.02	0.17(0.02)	0.65(0.17)	0.65	2.35
	30/35/40			0.02	0.14(0.02)	0.60(0.14)	0.60	1.45
	50/70/100			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. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

※ The above figures/specifications are subject to change without prior notice.

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# PLANETARY GEARHEADS



- PHL
- PHFR
- PHF
- PGH
- PUR
- PUL
- PUA
- PGLH
- PGCH
- PGEH
- PGSH
- PGL
- PGC
- PGE
- SGC
- SGE
- PGRH
- PGR
- PGFR
- PGF
- PBC
- PBE
- PAE
- PAC
- PAN
- PGS
- PNS
- PGW