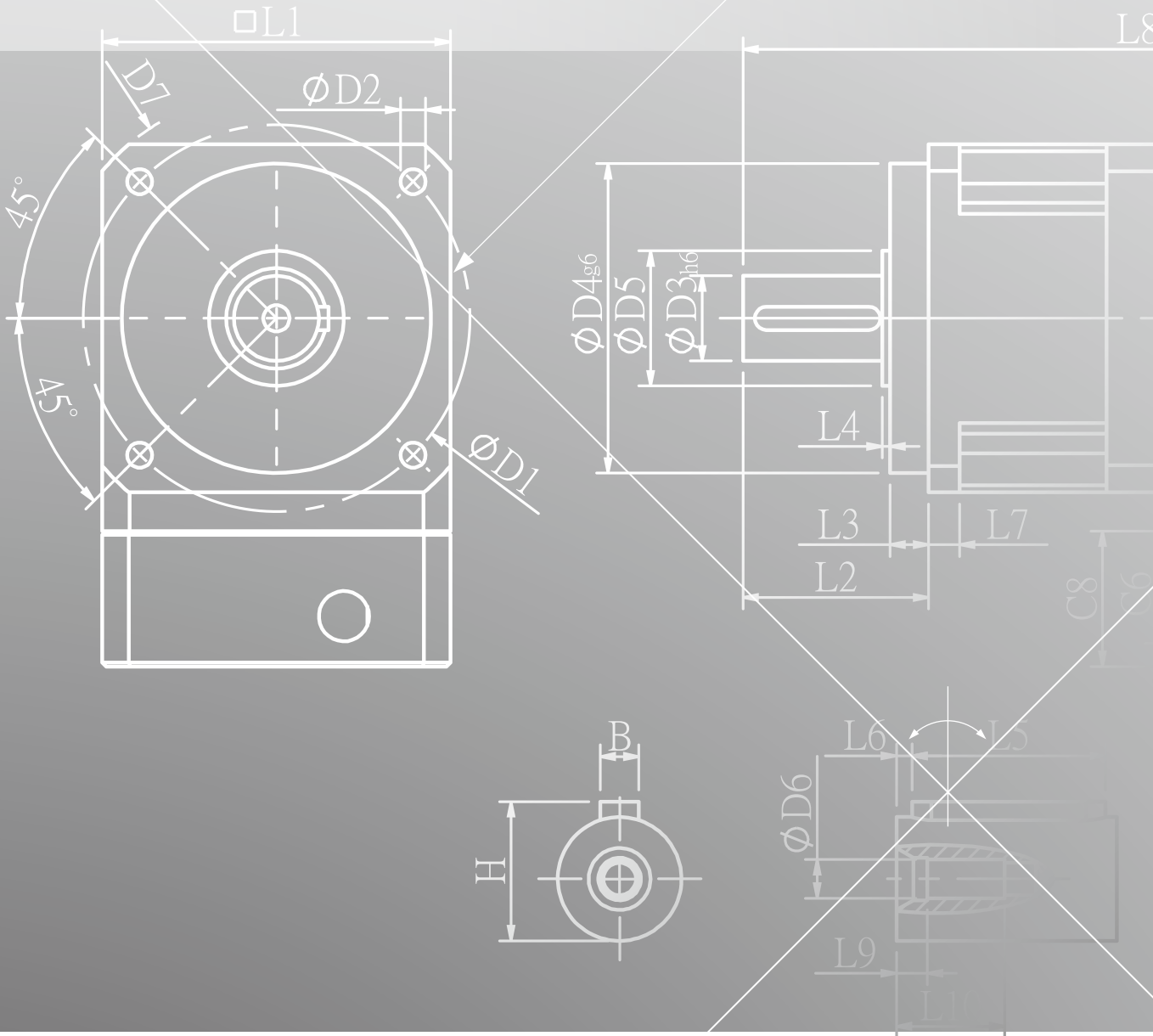
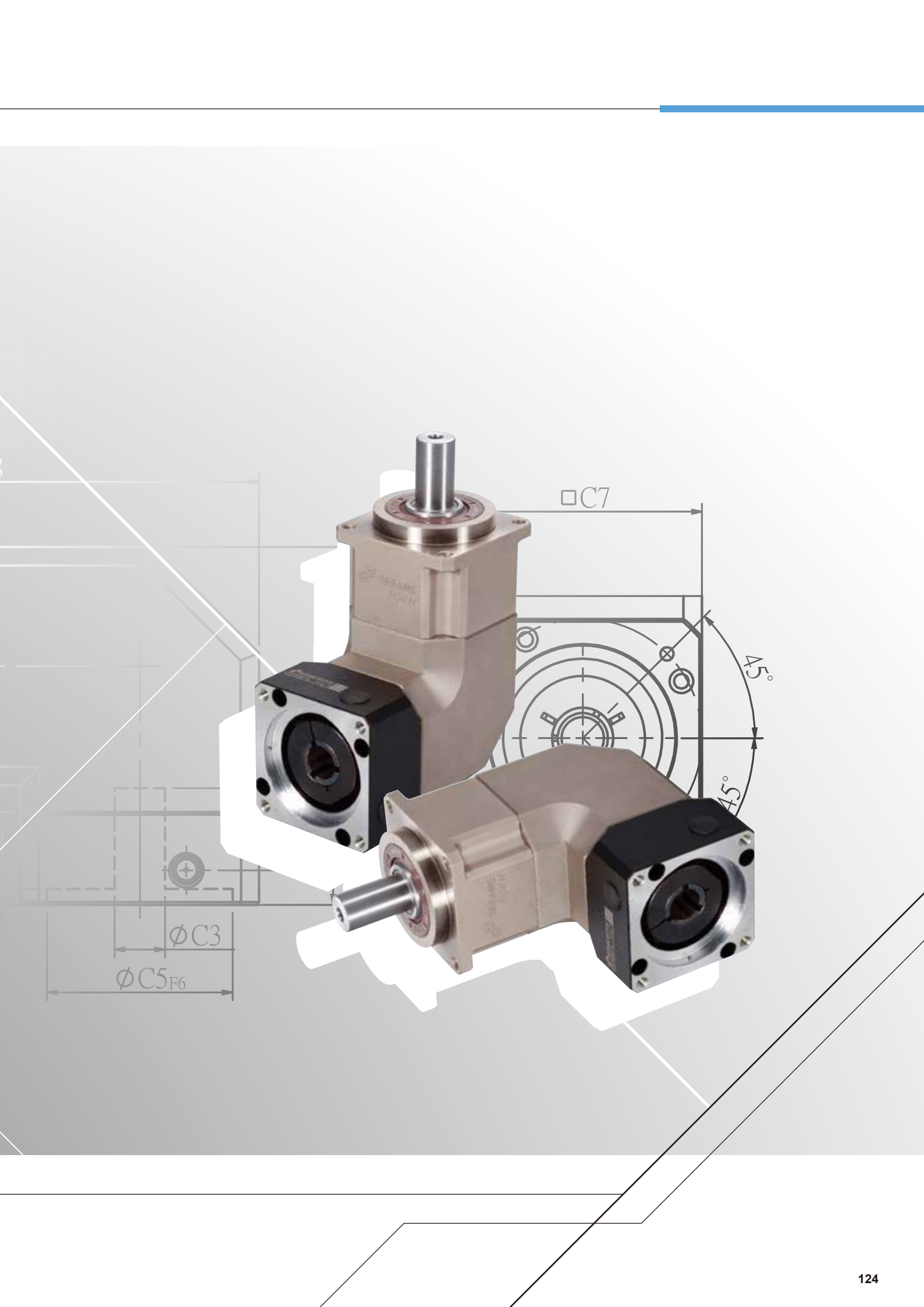


PGRH SERIES





□C7

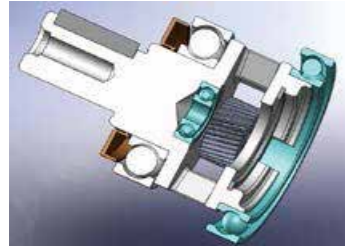
45°

45°

ØC3

ØC5F6

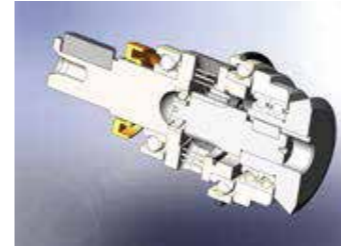
PGRH SERIES FEATURES



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.



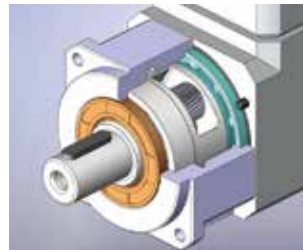
Alloy steel gear with unique heat treatment. Additionally, with gear grinding processing to get the best accuracy, high wear resistance and high impact toughness.



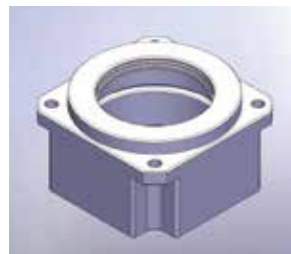
The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.



Alloy steel spiral bevel gears selected after hobbing and heat treatment to ensure high accuracy of the engagement point, low backlash and low noise.

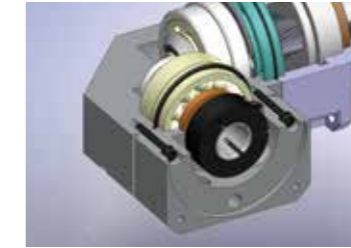
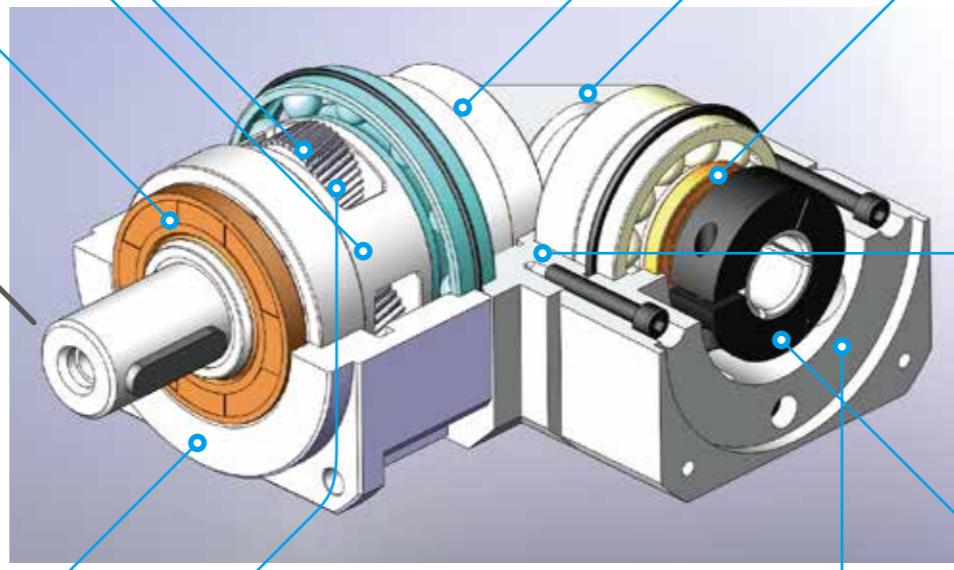


Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan.

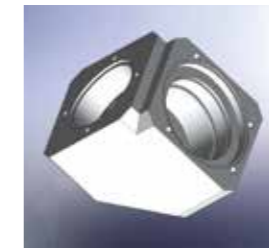


Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment. The gear box and internal gear ring are one-piece constructed, and then processed with advanced Germany gear shaper machinery for high-precision, high torque and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

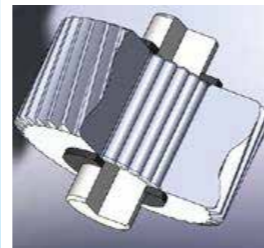
PGRH Series overall design suitable for combination operation with servo motor high-speed input and achieves maximum torque output. Right-angular designed drastically reducing the installation space. Precision gear design and gear processing create a planetary gearhead with low backlash operation, high efficiency, low noise and long lifespan.



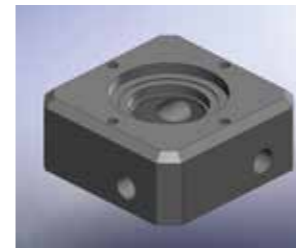
High-tech oil seal design on the upper lip guard against dust intruder, lower lip to guard against oil leak. Advanced lubricants grease and IP65 protection safeguards fully avoid leaking and given it maintenance-free.



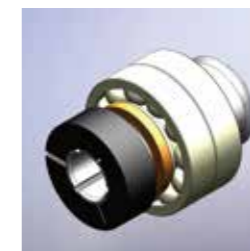
Right angular gear box processed by precision CNC equipment to obtain the highest combination with spiral bevel gears. Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment.



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.



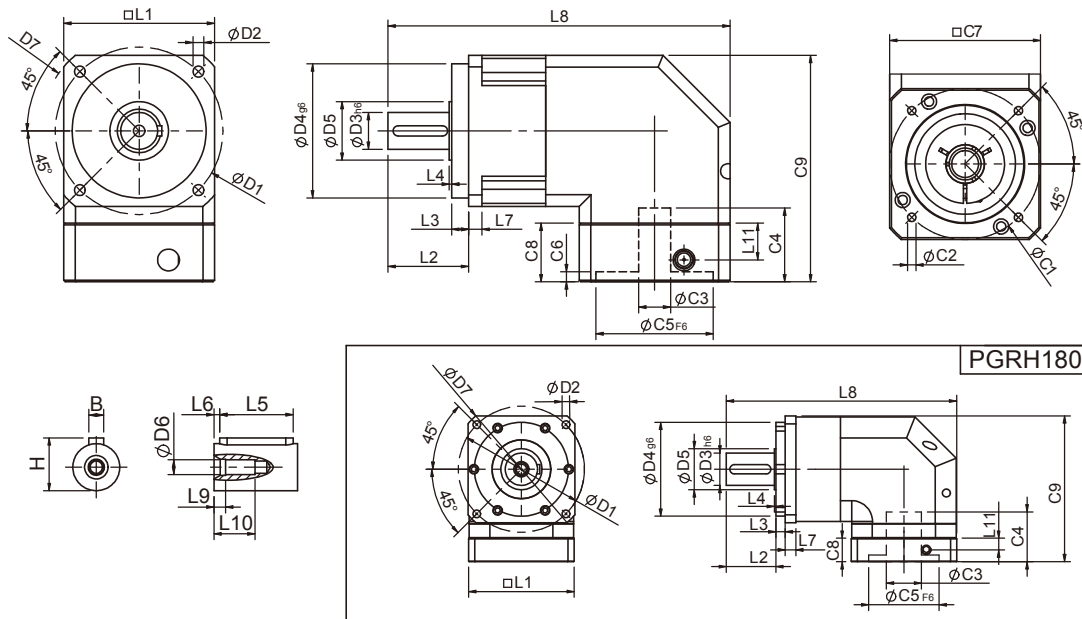
Advanced motor bracket design coupled with the input shaft bushing is easy to mount to any servo or stepper motor.



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.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

PGRH Single Stage Dimensions



Specifications

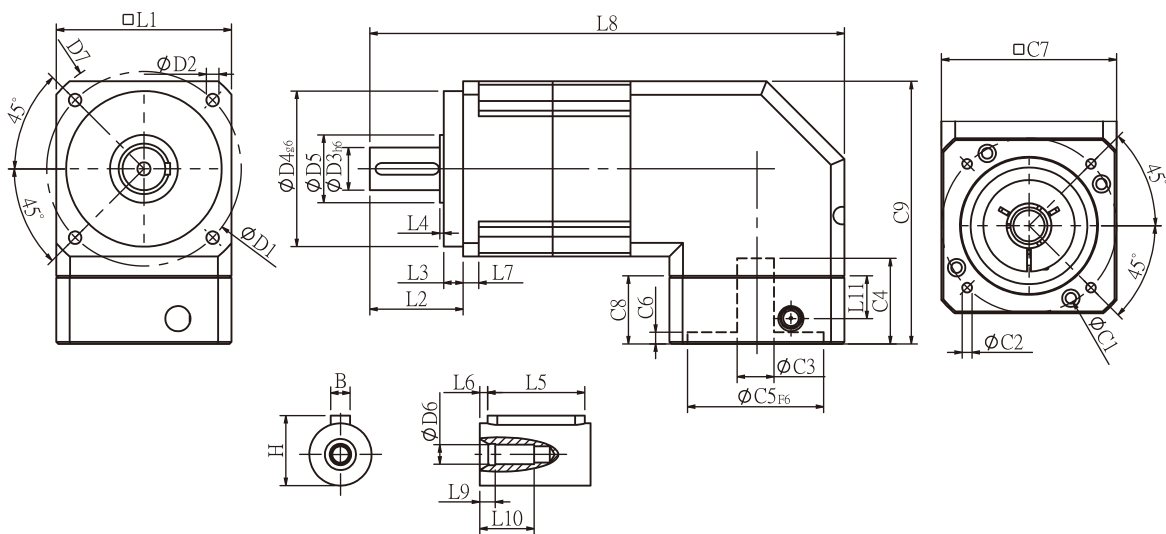
Unit:mm

Dimensions	PGRH42	PGRH60	PGRH90	PGRH115	PGRH142	PGRH180	PGRH220
D1	50	70	100	130	165	215	250
D2	3.4	5.5	6.5	8.5	10.5	13	17
D3 _{h6}	13	16	22	32	40	55	75
D4 _{g6}	35	50	80	110	130	160	180
D5	15	25	35	45	50	70	114.4
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	180	220
L2	26	37	48	63	91.5	100.5	138
L3	5.5	7	10	10	10	16	30
L4	1	1.5	1.5	3.5	2.5	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	11	16	18	20
L8	103.6	148.2	204	246.5	325	392.7	490.2
L9	4	4	4.5	6	6	8	15
L10	14	16.5	20.5	30	38	48	42
L11	13.5	21.5	22	32	44.7	20	60
C1 ²	46	70	90	115	145	200	215
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50	≤55
C4 ²	29	34	44	53	76.8	78.8	98.7
C5 ² _{F6}	30	50	70	95	110	114.3	180
C6 ²	6	5	5	6	9	6	6
C7 ²	42.6	60	90	115	140	182	220
C8 ²	25	33	35	48	65	40	85
C9 ²	70.8	107.8	135	174.5	207	248.5	287.5
B	5	5	6	10	12	16	20
H	15	18	24.5	35	43	59	79.5

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

* Specification subject to change without notice.

PGRH Double Stage Dimensions-1



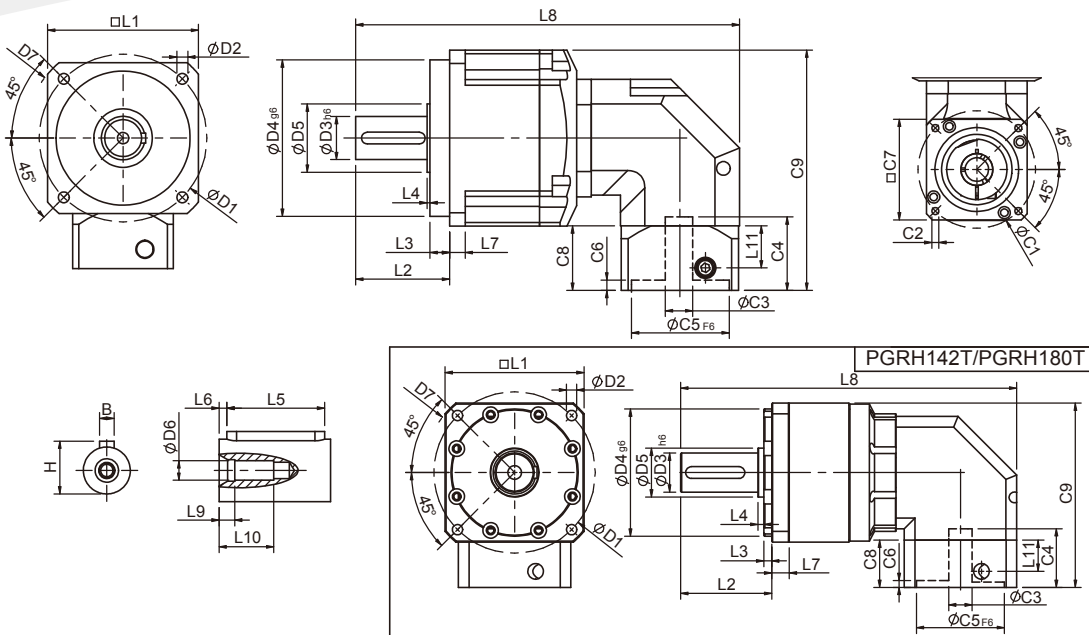
Specifications Unit:mm

Dimensions	PGRH42	PGRH60	PGRH90
D1	50	70	100
D2	3.4	5.5	6.5
D3 _{h6}	13	16	22
D4 _{g6}	35	50	80
D5	15	25	35
D6	M4x0.7P	M5x0.8P	M8x1.25P
D7	56	80	118
L1	42.6	60	90
L2	26	37	48
L3	5.5	7	10
L4	1	1.5	1.5
L5	15	25	32
L6	2	2	3
L7	4	6	8
L8	130.6	181.2	248
L9	4	4	4.5
L10	14	16.5	20.5
L11	13.5	21.5	22
C1 ²	46	70	90
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24
C4 ²	29	34	44
C5 ² _{F6}	30	50	70
C6 ²	6	5	5
C7 ²	42.6	60	90
C8 ²	25	33	35
C9 ²	70.8	107.8	135
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.

PGRH Double Stage Dimensions-2



Specifications

Unit:mm

Dimensions	PGRH60T	PGRH90T	PGRH115T	PGRH142T	PGRH180T	PGRH220T
D1	70	100	130	165	215	250
D2	5.5	6.5	8.5	10.5	13	17
D3 _{h6}	16	22	32	40	55	75
D4 _{g6}	50	80	110	130	160	180
D5	25	35	45	50	70	114.4
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20X2.5P
D7	80	118	148	186	239	292
L1	60	90	115	142	182	220
L2	37	48	63	91.5	100.5	138
L3	7	10	10	10	16	30
L4	1.5	1.5	3.5	2.5	2.5	3
L5	25	32	40	60	70	90
L6	2	3	5	5	6	7
L7	6	8	11	16	18	20
L8	151.8	200.7	272.5	345.5	424.5	537.2
L9	4	4.5	6	6	8	15
L10	16.5	20.5	30	38	48	42
L11	13.5	21.5	22	32	44.7	44
C1 ²	46	70	90	115	145	200
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50
C4 ²	29	34	45.2	53.5	76.8	78.8
C5 ² _{F6}	30	50	70	95	110	114.3
C6 ²	6	5	5	6	9	6
C7 ²	42.6	60	90	115	140	180
C8 ²	25	33	35	48	65	65
C9 ²	79.5	122.8	147.5	188	207	267.5
B	5	6	10	12	16	20
H	18	24.5	35	43	59	79.5

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

★ Specification subject to change without notice.

PGRH Specifications Table

Specifications		Stage	Ratio	PGRH-42	PGRH-60	PGRH-90	PGRH-115	PGRH-142	PGRH-180	PGRH-220	
Nominal Output Torque T_{2N}	N • m	1	3	10	40	95	200	380	750	950	
			4	12	48	120	260	520	1000	1500	
			5	15	60	150	325	600	1200	2000	
			6	18	55	150	310	560	1100	1900	
			7	19	50	140	300	530	1100	1800	
			8	17	45	120	260	480	1000	1600	
			9	14	40	100	230	450	900	1500	
			10	15	60	150	325	600	1200	2000	
			14	14	50	140	300	530	1100	1800	
			20	14	40	100	230	450	900	1500	
		2	Stage	Ratio	PGRH-42	PGRH-60 (T)	PGRH-90(T)	PGRH-115T	PGRH-142T	PGRH-180T	PGRH-220T
			15	14	50	130	290	520	950	2000	
			20	14	50	140	300	550	1000	2000	
			25	15	60	150	325	600	1200	2000	
			30	19	55	150	310	600	1100	1900	
			35	19	50	140	300	550	1100	1800	
			40	17	45	120	260	500	1000	1600	
			45	17	40	100	230	450	900	1500	
			50	17	60	150	325	600	1200	2000	
			60	20	55	150	310	600	1100	1900	
70	20	50	140	300	530	1100	1800				
80	20	45	120	260	480	1000	1600				
90	14	40	100	230	450	900	1500				
100	14	60	150	325	600	1200	2000				
120	17	55	150	310	560	1100	1900				
140	17	50	140	300	530	1100	1800				
160	14	45	120	260	480	1000	1600				
180	12	40	100	230	450	900	1500				
200	12	40	100	230	450	900	1500				
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	3-200	5000	5000	4000	4000	3000	3000	2000	
Max. Input Speed n_{1max}	rpm	1,2	3-200	10000	10000	8000	8000	6000	6000	4000	
Micro Backlash P_0	arcmin	1	3-20	-	-	≤ 3	≤ 2	≤ 2	≤ 2	≤ 2	
		2	15-200	-	-	≤ 5	≤ 4	≤ 4	≤ 4	≤ 4	
Precision Backlash P_1	arcmin	1	3-20	≤ 5	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4	≤ 4	
		2	15-200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	
Standard Backlash P_2	arcmin	1	3-20	≤ 7	≤ 7	≤ 7	≤ 6	≤ 6	≤ 6	≤ 6	
		2	15-200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	
Torsional Rigidity	N • m /arcmin	1,2	3-200	3	7	14	25	50	145	225	
Max. Radial Load F_{2rB}^1	N	1,2	3-200	760	1570	3250	6620	9400	14500	33000	
Max. Axial Load F_{2aB}^1	N	1,2	3-200	410	750	1870	3310	4670	6460	18530	
Operating Temp.	°C		3-200	-10 °C ~ +90 °C							
Service Life	hr		3-200	20,000 (10,000 Continuous operation)							
Efficiency	%	1	3-20	≥ 95%							
		2	15-200	≥ 92%							
Weight	kg	1	3-20	1.0	2.6	6.8	13.5	25.1	42	75	
		2	15-200	1.4	3.3/2.9	8.9/7.2	14.8	26.7	46	88	
Mounting Position	-	1,2	3-200	Any direction							
Noise Level ²	dBA/1m	1,2	3-200	61	63	65	68	70	72	74	
Protection Class	-	1,2	3-200	IP65							
Lubrication	-	1,2	3-200	Synthetic Lubricant							
Inertia (J1)											
Stage	Ratio	unit	PGRH-42	PGRH-60	PGRH-90	PGRH-115	PGRH-142	PGRH-180	PGRH-220		
1	3/4/5/7/9	Kg • cm ²	0.06	0.40	2.28	6.87	24.2	69.8	138.2		
	6/8/10/14/20		0.05	0.30	1.45	4.76	14.5	50.3	103.6		
Stage	Ratio	Kg • cm ²	PGRH-42	PGRH-60(T)	PGRH-90(T)	PGRH-115T	PGRH-142T	PGRH-180T	PGRH-220T		
2	15/20/25/35/45		0.06	0.40(0.08)	2.28(0.72)	3.02	7.83	27.7	80.3		
	others	0.05	0.30(0.06)	1.45(0.38)	1.64	5.00	15.9	55.3			

* 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.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

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