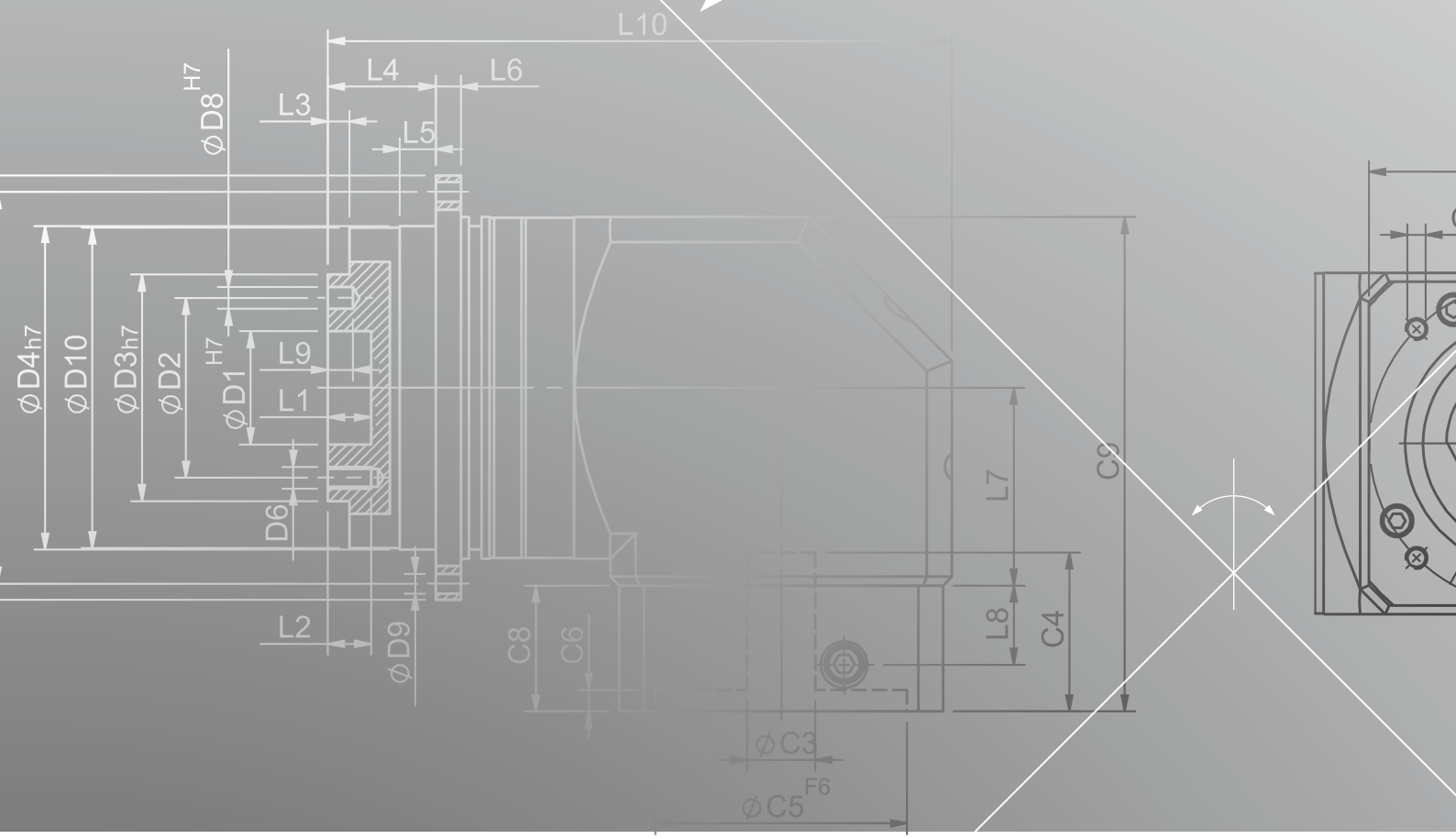
PHFR SERIES


L10
L4
L6
L3
L5
ϕD8 H7
ϕD4h7
ϕD10
ϕD3h7
ϕD2
ϕD1 H7
L9
L1
D6
L2
ϕD9
C8
C6
L7
L8
C9
C4
ϕC3
ϕC5 F6

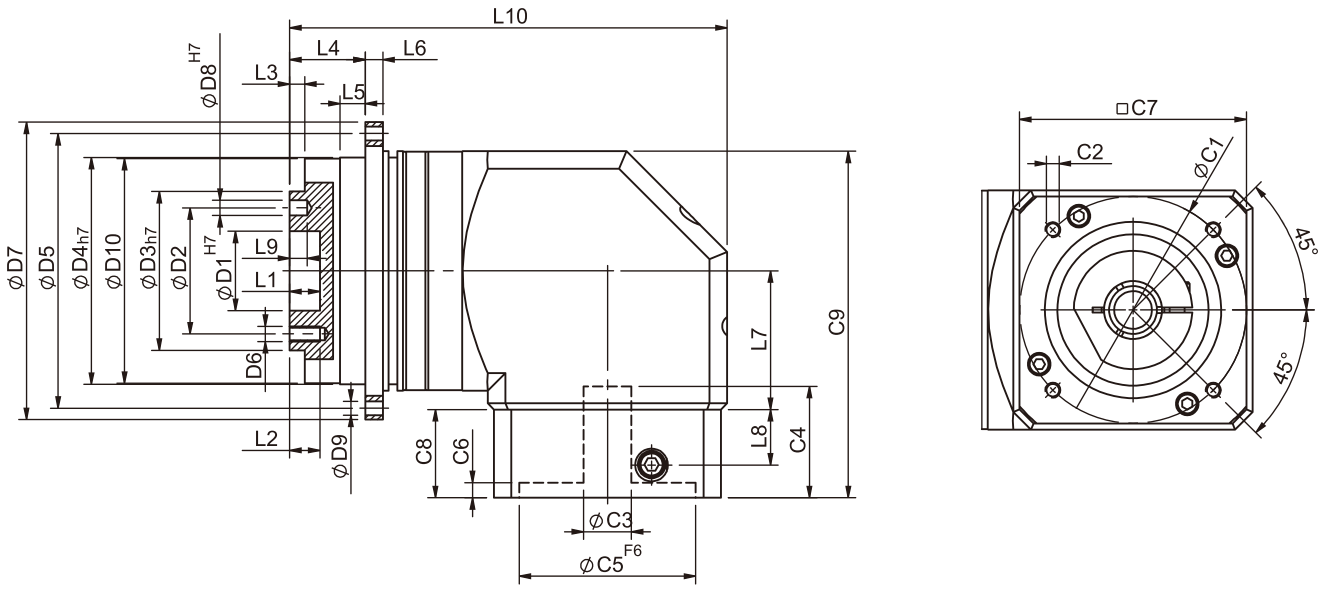
L10
L4
L6
L3
L5
ØD8 H7
ØD7
ØD5
ØD4h7
ØD10
ØD3h7
ØD2
ØD1 H7
L9
L1
D6
L2
ØD9
L7
C9
L8
C4
C8
C6
ØC3
ØC5 F6

□C7
C2
ØC1
45°
45°


SESAME
PHFN


□C7
C2
ØC1
45°

PHFR Single Stage Dimensions



Specifications

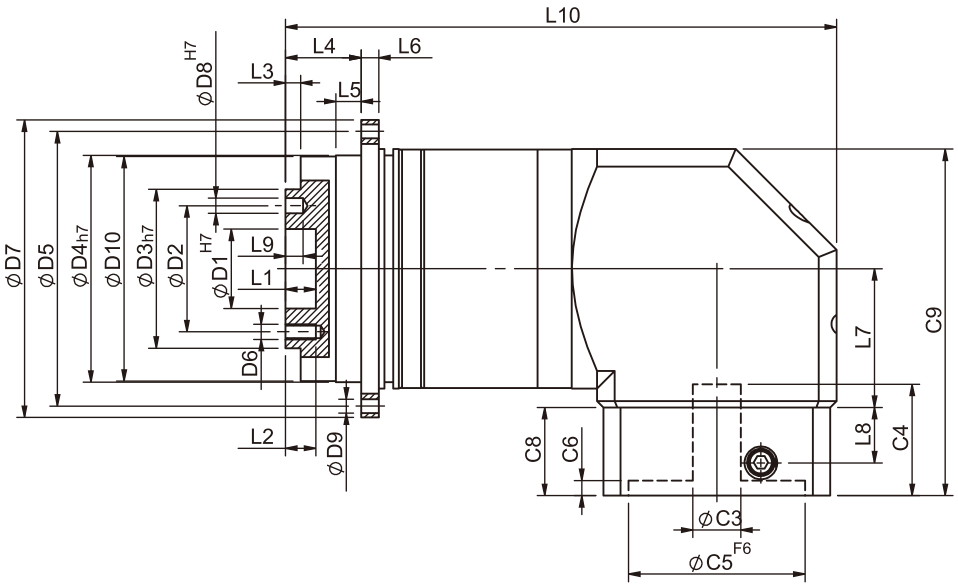
Unit:mm

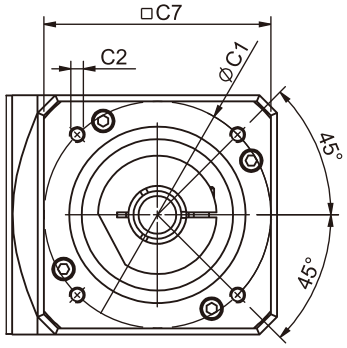
Dimensions	PHFR42	PHFR60	PHFR90	PHFR115	PHFR142	PHFR200	PHFR255
D1 H7	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 h7	28	40	63	80	100	160	180
D4 h7	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M10x1.5P	M16x2.0P
D7	72	86	118	145	179	247	300
D8 H7	3	5	6	6	8	10	12
D9	3.4	4.5	5.5	5.5	6.6	9	13.5
D10	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6	7.2	12	13.5	16	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L7	32.2	44.8	55	69	71	92.5	92.5
L8	13.5	21.5	22	32	47.8	44	60
L9	4	6	7	7	7	10	10
L10	92.2	128.3	173.6	204.2	250.7	330.7	392.2
C1 [2]	46	70	90	90	145	200	215
C2 [2]	M4x0.7P	M5x08P	M6x1.0P	M6x1.0P	M8x1.25P	M12x1.75P	M12x1.75P
C3 [2]	≦8/≦11	≦14/≦19	≦19/≦24	≦24/≦32	≦35	≦50	≦55
C4 [2]	29	34	44	53.5	76.8	78.8	98.7
C5 [2] F6	30	50	70	70	110	114.3	180
C6 [2]	6	5	5	5.5	9	6	6
C7 [2]	42.6	60	90	115	140	180	220
C8 [2]	25	33	35	48	65	65	85
C9 [2]	78.5	112.8	137.5	176.5	225.5	246.5	266.5

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

★ Specification subject to change without notice.

PHFR Double Stage Dimensions-1





Specifications

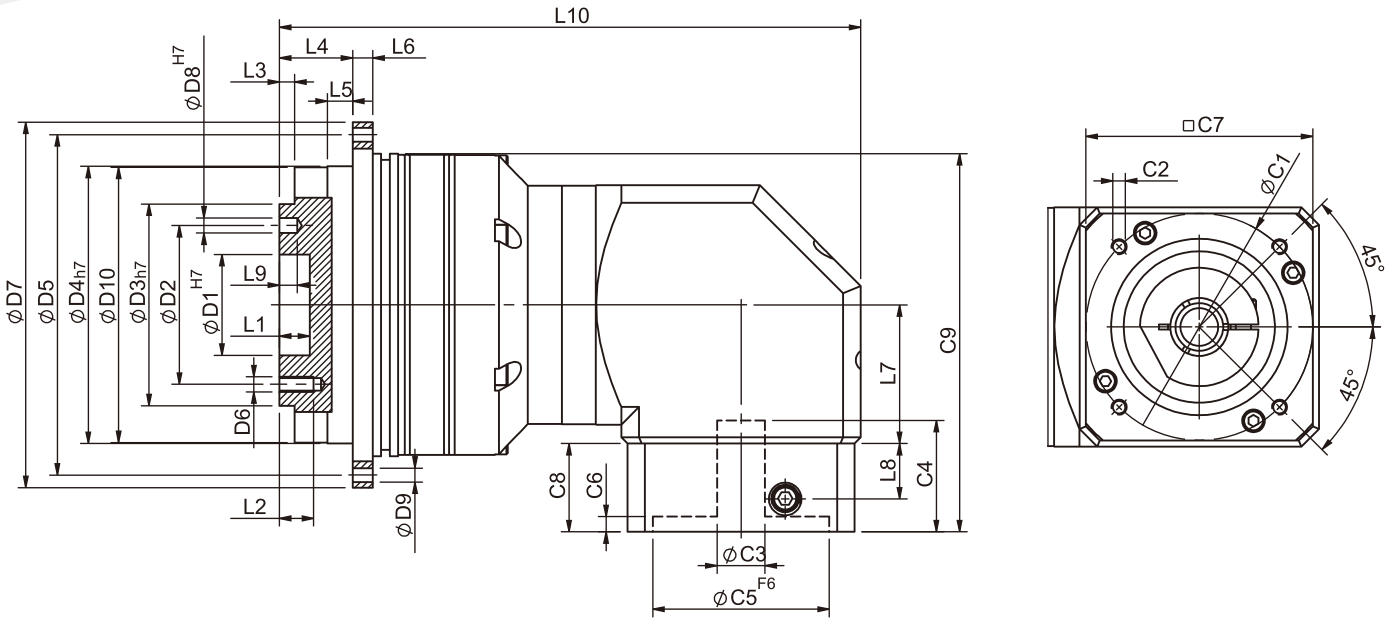
Unit:mm

Dimensions	PHFR42	PHFR60	PHFR90
D1 H7	12	20	31.5
D2	20	31.5	50
D3 h7	28	40	63
D4 h7	47	64	90
D5	67	79	109
D6	M3x0.5P	M5x0.8P	M6x1.0P
D7	72	86	118
D8 H7	3	5	6
D9	3.4	4.5	5.5
D10	46.2	63.2	89.2
L1	4	8	12
L2	6	7.2	12
L3	3	3	6
L4	19.5	19.5	30
L5	7	7	10
L6	4	4	7
L7	32.2	44.8	55
L8	13.5	21.5	22
L9	4	6	7
L10	119.9	163.3	218.6
C1 [2]	46	70	90
C2 [2]	M4x0.7P	M5x08P	M6x1.0P
C3 [2]	≦8	≦14	≦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]	78.5	112.8	137.5

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

★ Specification subject to change without notice.

PHFR Double Stage Dimensions-2



Specifications

Unit:mm

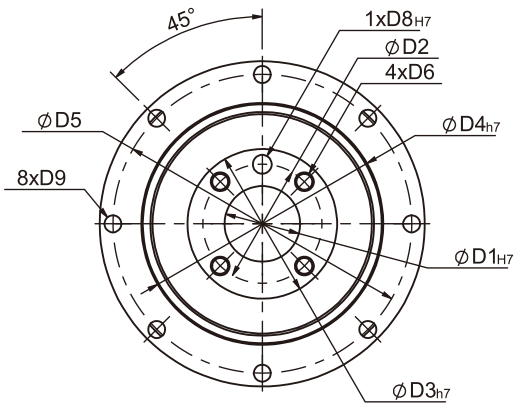
Dimensions	PHFR60T	PHFR90T	PHFR115T	PHFR142T	PHFR200T	PHFR255T
D1 H7	20	31.5	40	50	80	100
D2	31.5	50	63	80	125	140
D3 h7	40	63	80	100	160	180
D4 h7	64	90	110	140	200	255
D5	79	109	135	168	233	280
D6	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M10x1.5P	M16x2.0P
D7	86	118	145	179	247	300
D8 H7	5	6	6	8	10	12
D9	4.5	5.5	5.5	6.6	9	13.5
D10	63.2	89.2	109.2	139.2	199.2	254.2
L1	8	12	12	12	12	20
L2	7.2	12	13.5	16	22.5	30.5
L3	3	6	6	6	8	12
L4	19.5	30	29	38	50	66
L5	7	10	10	14.6	15	20
L6	4	7	8	10	12	18
L7	32.2	44.8	55	69	71	92.5
L8	13.5	21.5	22	32	47.8	44
L9	4	7	7	7	10	10
L10	130.6	173.8	230.6	270.7	361.4	439.2
C1 [2]	46	70	90	90	145	200
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M12x1.75P
C3 [2]	≦8/≦11	≦14/≦19	≦19/≦24	≦24/≦32	≦35	≦50
C4 [2]	29	34	44	53.5	76.8	78.8
C5 [2] F6	30	50	70	70	110	114.3
C6 [2]	6	5	5	5.5	9	6
C7 [2]	42.6	60	90	115	140	92.5
C8 [2]	25	33	35	48	65	65
C9 [2]	84.4	125.3	150	176.5	225.5	284

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

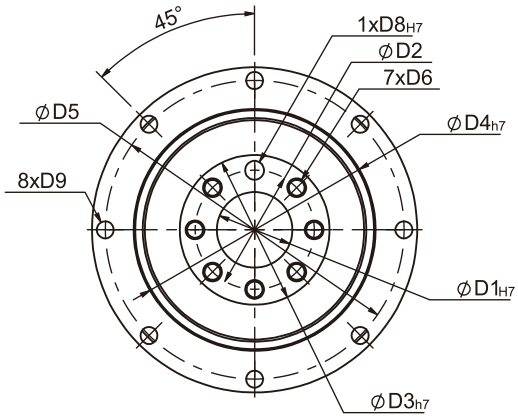
★ Specification subject to change without notice.

PHFR Flange Dimensions

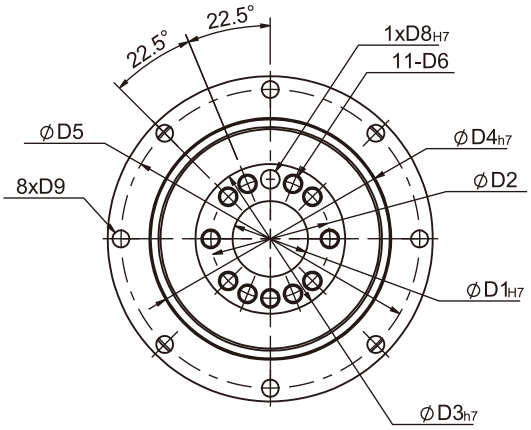
PHFR42



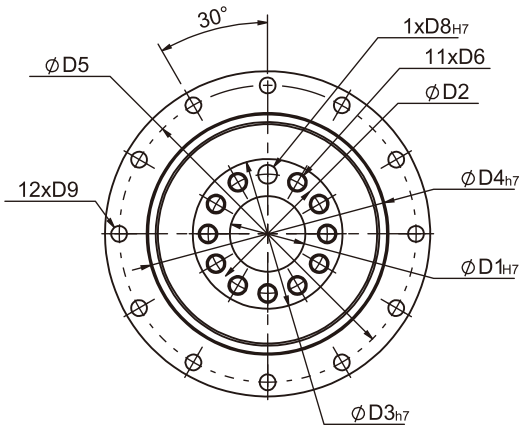
PHFR60
PHFR90



PHFR115



PHFR142
PHFR200



Specifications

Unit:mm

Dimensions	PHFR42	PHFR60	PHFR90	PHFR115	PHFR142	PHFR200
D1 H7	12	20	31.5	40	50	80
D2	20	31.5	50	63	80	125
D3 h7	28	40	63	80	100	160
D4 h7	47	64	90	110	140	200
D5	67	79	109	135	168	233
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M10x1.5P
D8 H7	3	5	6	6	8	10
D9	3.4	4.5	5.5	5.5	6.6	9

★ Specification subject to change without notice.

PHFR Specifications Table

Specifications		Stage	Ratio	PHFR-42	PHFR-60	PHFR-90	PHFR-115	PHFR-142	PHFR-200	PHFR-255
Nominal Output Torque T_{2N}	N • m	1	3	-	40	105	180	340	580	950
			4	16	43	110	240	500	1100	1500
			5	17	50	130	290	600	1200	1800
			7	14	44	125	270	530	1100	1750
			10	17	50	130	260	540	900	1500
			14	14	44	125	270	530	1100	1750
			20	11	37	95	220	430	900	1450
		Stage	Ratio	PHFR-42	PHFR-60 PHFR-60T	PHFR-90 PHFR-90T	PHFR-115T	PHFR-142T	PHFR-200T	PHFR-255T
		2	15	-	40	105	180	600	1200	2000
			20	16	43	110	240	600	1200	2000
			25	17	50	130	290	600	1200	2000
			30	17	40	105	180	600	1200	2000
			35	17	50	130	290	600	1200	2000
			40	16	43	110	240	600	1200	2000
			50	17	50	130	290	600	1200	2000
			70	14	44	125	270	530	1100	1750
			100	11	37	95	220	430	900	1450
			140	14	44	125	270	530	1100	1750
			200	11	37	95	220	430	900	1450
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 P0	arcmin	1	3-20	-	-	≦3	≦2	≦2	≦2	≦2
		2	15-200	-	-	≦5	≦4	≦4	≦4	≦4
Precision Backlash P1	arcmin	1	3-20	≦5	≦5	≦5	≦4	≦4	≦4	≦4
		2	15-200	≦7	≦7	≦7	≦7	≦7	≦7	≦7
Standard Backlash P2	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	6	12	30	80	150	450	1000
Max. Bending Moment M_{2kB} [1]	N • m	1,2	3-200	43	125	288	503	1470	2950	6500
Max. Axial Load F_{2aB} [1]	N	1,2	3-200	1015	1340	2868	3890	9850	12560	21850
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	2.3	6.6	13.5	25.1	50	85
		2	15-200	1.1	3.2/2.2	8.6/5.3	14.8	26.7	55	88
Mounting Position	-	1,2	3-200	Any direction						
Noise Level [2]	dBA/1m	1,2	3-200	62	64	66	68	70	72	74
Protection Class	-	1,2	3-200	IP65						
Lubrication	-	1,2	3-200	Synthetic Lubricant						

Inertia(J1)

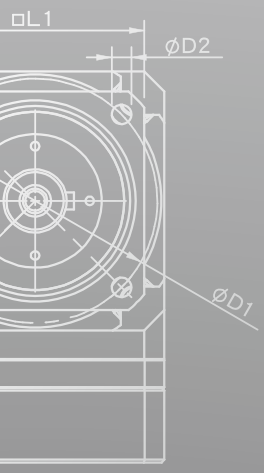
Stage	Ratio	unit	PHFR-42	PHFR-60	PHFR-90	PHFR-115	PHFR-142	PHFR-200	PHFR-255
1	3/4/5/7/9	Kg • cm^2	0.06	0.40	2.28	6.87	24.2	69.8	138.2
	10/14/20		0.05	0.30	1.45	4.76	14.5	50.3	103.6
Stage	Ratio		PHFR-42	PHFR-60(T)	PHFR-90(T)	PHFR-115T	PHFR-142T	PHFR-200T	PHFR-255T
2	15/20/25/35		0.06	0.40(0.08)	2.28(0.72)	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

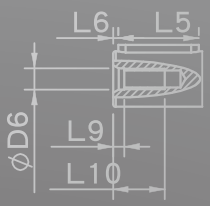
* 1. Applied to the output shaft center @100rpm.
* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

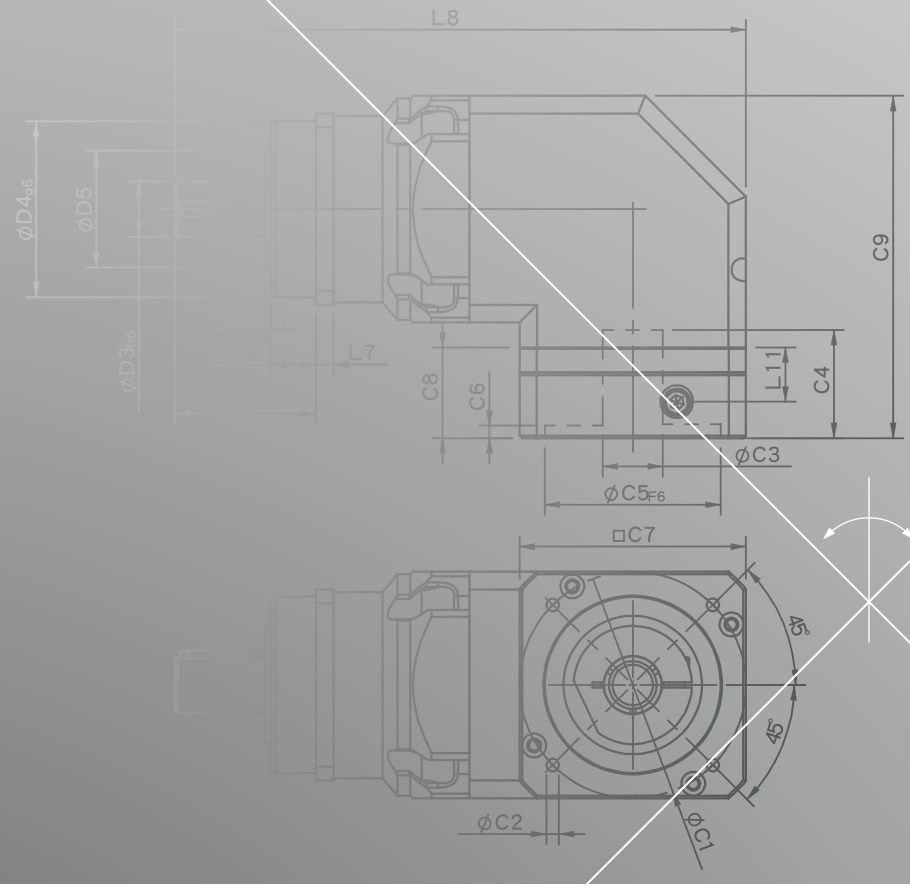
※ The above figures/specifications are subject to change without prior notice.

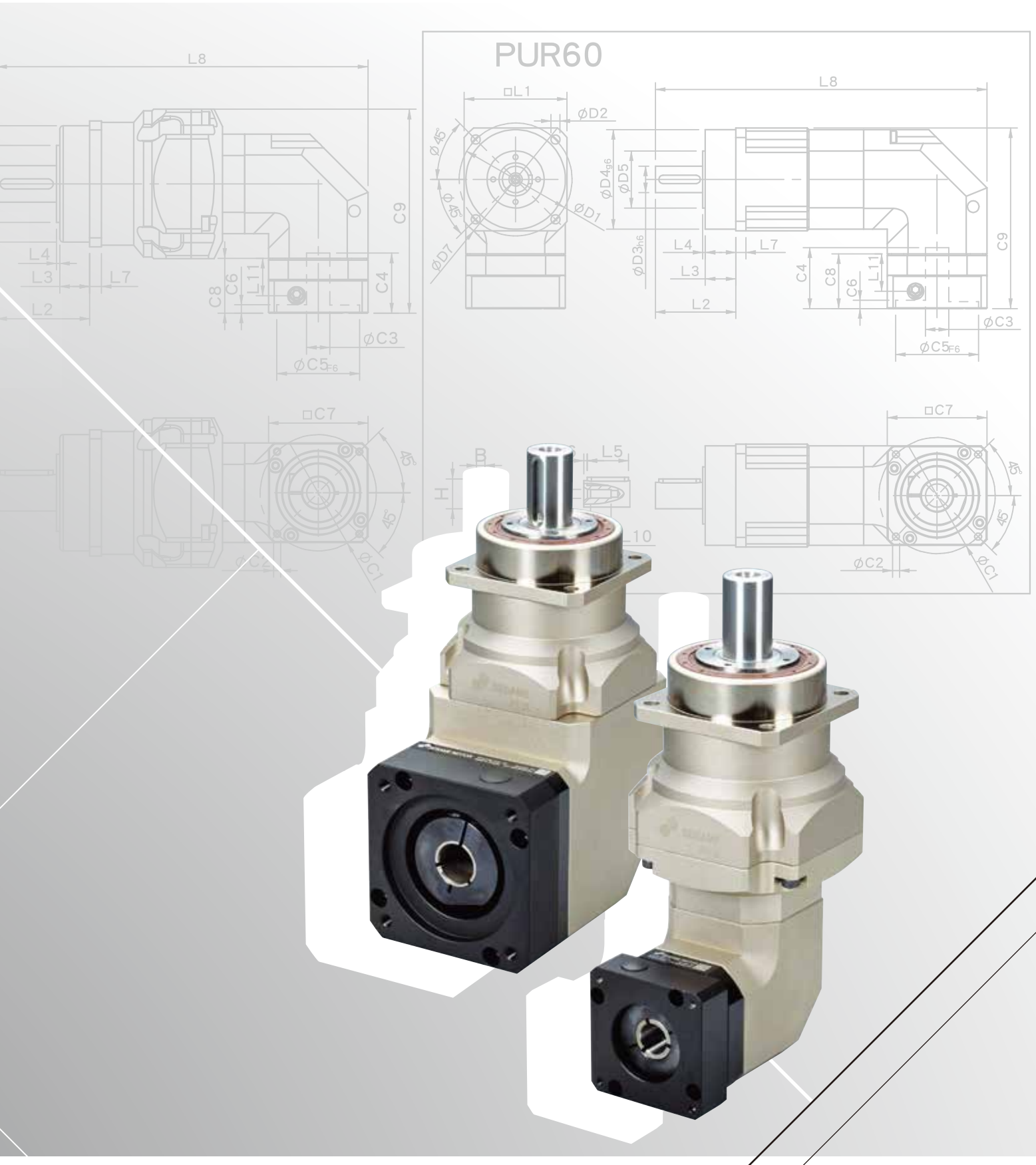
Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

PUR SERIES

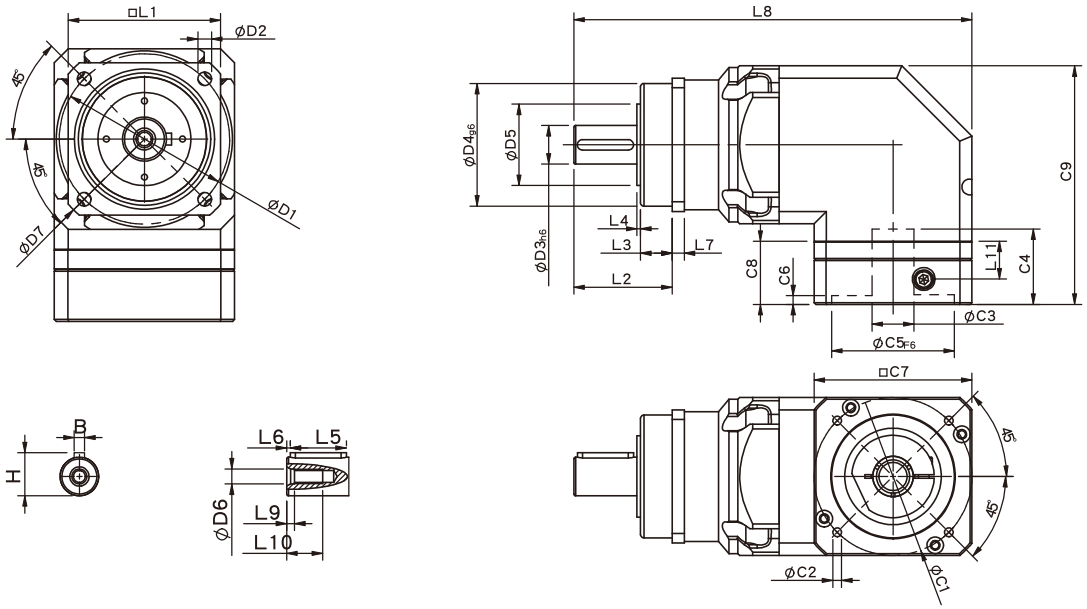

□L1
ØD2
ØD1


L6
L5
ØD6
L9
L10


L8
ØD4g6
ØD5
ØD3h6
L7
C8
C6
C9
L11
C4
ØC3
ØC5F6
□C7
45°
45°
ØC2
ØC1


PUR60
L8
C9
L4
L3
L7
L2
C8
C6
L11
C4
ØC3
ØC5F6
□L1
ØD2
Ø45°
Ø22.5°
ØD1
ØD7
ØD4g6
ØD5
ØD3h6
□C7
B
L5
H
L10
ØC2
ØC1

PUR Single Stage Dimensions



Specifications

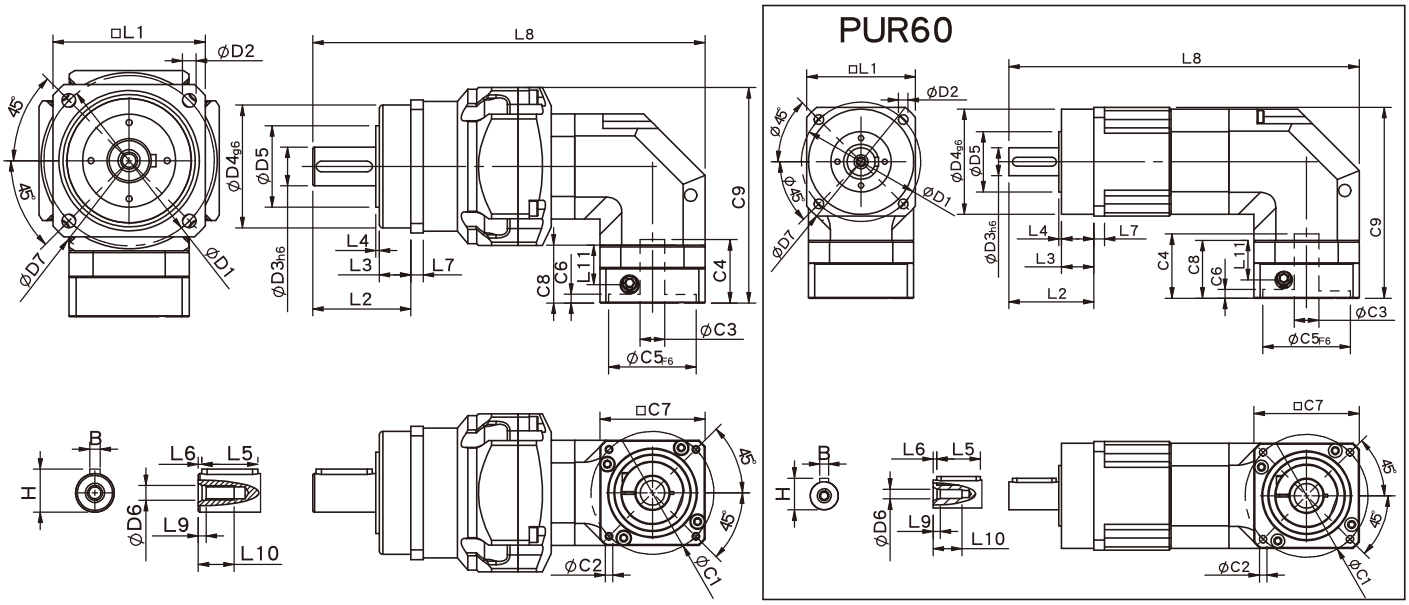
Unit:mm

Dimensions	PUR60	PUR75	PUR100	PUR140	PUR180	PUR220
D1	68	85	120	165	215	250
D2	5.5	6.8	9	11	13	17
D3 h6	16	22	32	40	55	75
D4 g6	60	70	90	130	160	180
D5	34.6	46.4	59.6	79.2	94.5	114.4
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	80	100	138	186	239	292
L1	62	76	105	142	180	220
L2	48.5	56	88	112	112	138
L3	18.5	18	28	27	27	30
L4	1.5	2	2	3	3	3
L5	25	32	40	60	70	90
L6	2	2	5	5	6	7
L7	6	7	10	12	15	20
L8	166.7	227	260.5	346.2	414.7	490.2
L9	4	4.5	6	6	8	15
L10	16.5	20.5	30	38	48	42
L11	22.5	21.5	31.8	44.7	44	60
C1 [2]	70	90	115	145	200	215
C2 [2]	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 [2]	≦14/≦19	≦19/≦24	≦24/≦32	≦35	≦50	≦55
C4 [2]	34	45	53	76.8	78.8	98.7
C5 [2] F6	50	70	95	110	114.3	180
C6 [2]	4	4	6	5.5	6	6
C7 [2]	60	90	115	140	180	220
C8 [2]	33	36	48	65	65	85
C9 [2]	108.8	136	174.5	207	247.5	287.5
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 the motor flange chosen.

★ Specification subject to change without notice.

PUR Double Stage Dimensions



Specifications

Unit:mm

Dimensions	PUR60	PUR60T	PUR75T	PUR100T	PUR140T	PUR180T	PUR220T
D1	68	68	85	120	165	215	250
D2	5.5	5.5	6.8	9	11	13	17
D3 h6	16	16	22	32	40	55	75
D4 g6	60	60	70	90	130	160	180
D5	34.6	34.6	46.4	59.6	79.2	94.5	114.4
D6	M5x0.8P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	80	80	100	138	186	239	292
L1	62	62	76	105	142	180	220
L2	48.5	48.5	56	88	112	112	138
L3	18.5	18.5	18	28	27	27	30
L4	1.5	1.5	2	2	3	3	3
L5	25	25	32	40	60	70	90
L6	2	2	2	5	5	6	7
L7	6	6	7	10	12	15	20
L8	199.7	170.3	223.7	286.5	358.5	445.4	537.2
L9	4.5	4	4.5	6	6	8	15
L10	20.5	16.5	20.5	30	38	48	42
L11	22.5	15.5	22.5	21.5	31.8	44.7	44
C1 [2]	70	46	70	90	115	145	200
C2 [2]	M5x0.8P	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.7P
C3 [2]	≦14/≦19	≦8/≦11	≦14/≦19	≦19/≦24	≦24/≦32	≦35	≦50
C4 [2]	34	29	34	45	53.5	76.8	78.8
C5 [2] F6	50	30	50	70	95	110	114.3
C6 [2]	4	4	4	6	6	5.5	6
C7 [2]	60	42.6	60	90	115	140	180
C8 [2]	33	25	33	36	48	65	65
C9 [2]	108.8	80.5	122.8	148.5	188	223.5	267.5
B	6	5	6	10	12	16	20
H	24.5	18	24.5	35	43	59	79.5

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

★ Specification subject to change without notice.

PUR Specifications Table

Specifications		Stage	Ratio	PUR-60	PUR-75	PUR-100	PUR-140	PUR-180	PUR-220
Nominal Output Torque T_{2N}	N • m	1	3	53	145	180	340	580	950
			4	55	150	240	500	1100	1500
			5	54	140	290	600	1200	1800
			6	46	135	280	500	1100	1620
			7	44	125	270	530	1100	1750
			8	41	110	240	470	1000	1550
			9	37	95	220	430	900	1500
			10	50	130	260	540	900	1500
			14	44	125	270	530	1100	1750
			20	37	95	220	430	900	1450
		Stage	Ratio	PUR-60 (T)	PUR-75T	PUR-100T	PUR-140T	PUR-180T	PUR-220T
		2	15	53	145	180	600	1200	2000
			20	55	150	240	600	1200	2000
			25	54	140	290	600	1200	2000
			30	53	145	180	600	1200	2000
			35	54	140	290	600	1200	2000
			40	55	150	240	600	1200	2000
			45	54	140	290	600	1200	2000
			50	54	140	290	600	1200	2000
			60	46	135	280	560	1100	1850
			70	44	125	270	530	1100	1750
			80	41	110	240	480	1000	1550
			90	37	95	220	430	900	1500
			100	37	95	220	430	900	1450
			120	46	135	280	560	1100	1850
			140	44	125	270	530	1100	1750
			160	41	110	240	480	1000	1550
			180	37	95	220	430	900	1500
			200	37	95	220	430	900	1450
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	4000	4000	3000	3000	2000
Max. Input Speed n_{1max}	rpm	1,2	3-200	10000	8000	8000	6000	6000	4000
Micro Backlash P0	arcmin	1	3-20	-	≦3	≦2	≦2	≦2	≦2
		2	15-200	-	≦5	≦4	≦4	≦4	≦4
Precision Backlash P1	arcmin	1	3-20	≦5	≦5	≦4	≦4	≦4	≦4
		2	15-200	≦7	≦7	≦7	≦7	≦7	≦7
Standard Backlash P2	arcmin	1	3-20	≦7	≦7	≦6	≦6	≦6	≦6
		2	15-200	≦9	≦9	≦9	≦9	≦9	≦9
Torsional Rigidity	N • m /arcmin	1,2	3-200	7	14	25	50	150	220
Max. Radial Load F_{2rB} [1]	N	1,2	3-200	4130	5220	10650	17600	22000	27800
Max. Axial Load F_{2aB} [1]	N	1,2	3-200	2500	3300	5700	11300	14000	16200
Operating Temp.	°C		3-200	-10 °C ~+90 °C					
Service Life	hr		3-200	30,000 (15,000/Continuous operation)					
Efficiency	%	1	3-10	≧95%					
		2	15-200	≧92%					
Weight	kg	1	3-10	3.1	5.5	12.5	25.5	46	75
		2	15-200	3.7/3.3	4 9	13.6	27	50	88
Mounting Position	-	1,2	3-200	Any direction					
Noise Level [2]	dBA/1m	1,2	3-200	64	66	68	70	72	74
Protection Class	-	1,2	3-200	IP65					
Lubrication	-	1,2	3-200	Synthetic Lubricant					

Inertia(J1)

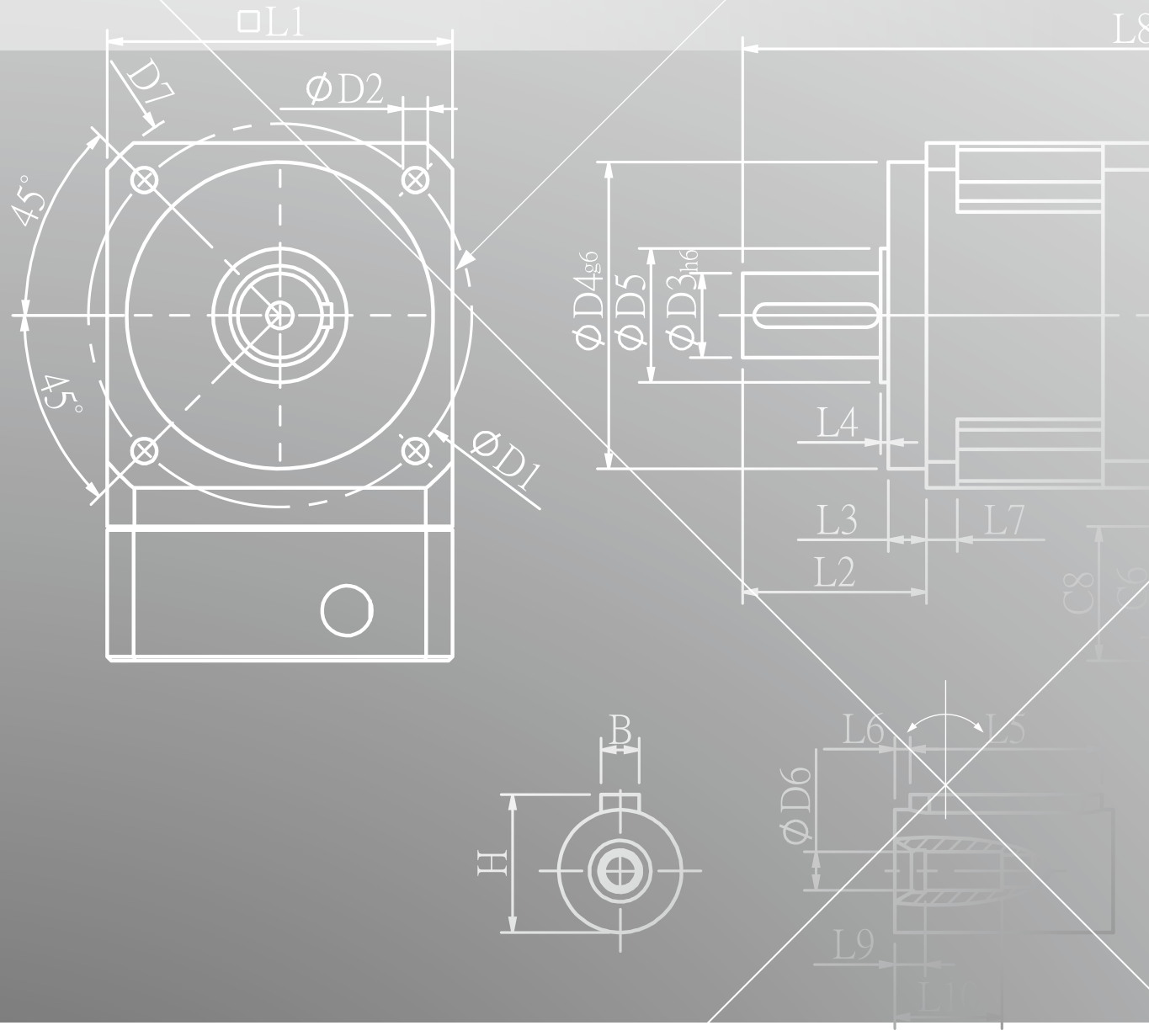
Stage	Ratio	unit	PUR-60	PUR-75	PUR-100	PUR-140	PUR-180	PUR-220
1	3/4/5/7/9	Kg • cm^2	0.40	2.28	6.87	24.2	69.8	138.2
	6/8/10/14/20		0.30	1.45	4.76	14.5	50.3	103.6
Stage	Ratio		PUR-60(T)	PUR-75T	PUR-100T	PUR-140T	PUR-180T	PUR-220T
2	15/20/25/35/45		0.40(0.08)	0.72	3.02	7.83	27.7	80.3
	others		0.30(0.06)	0.38	1.64	5.00	15.9	55.3

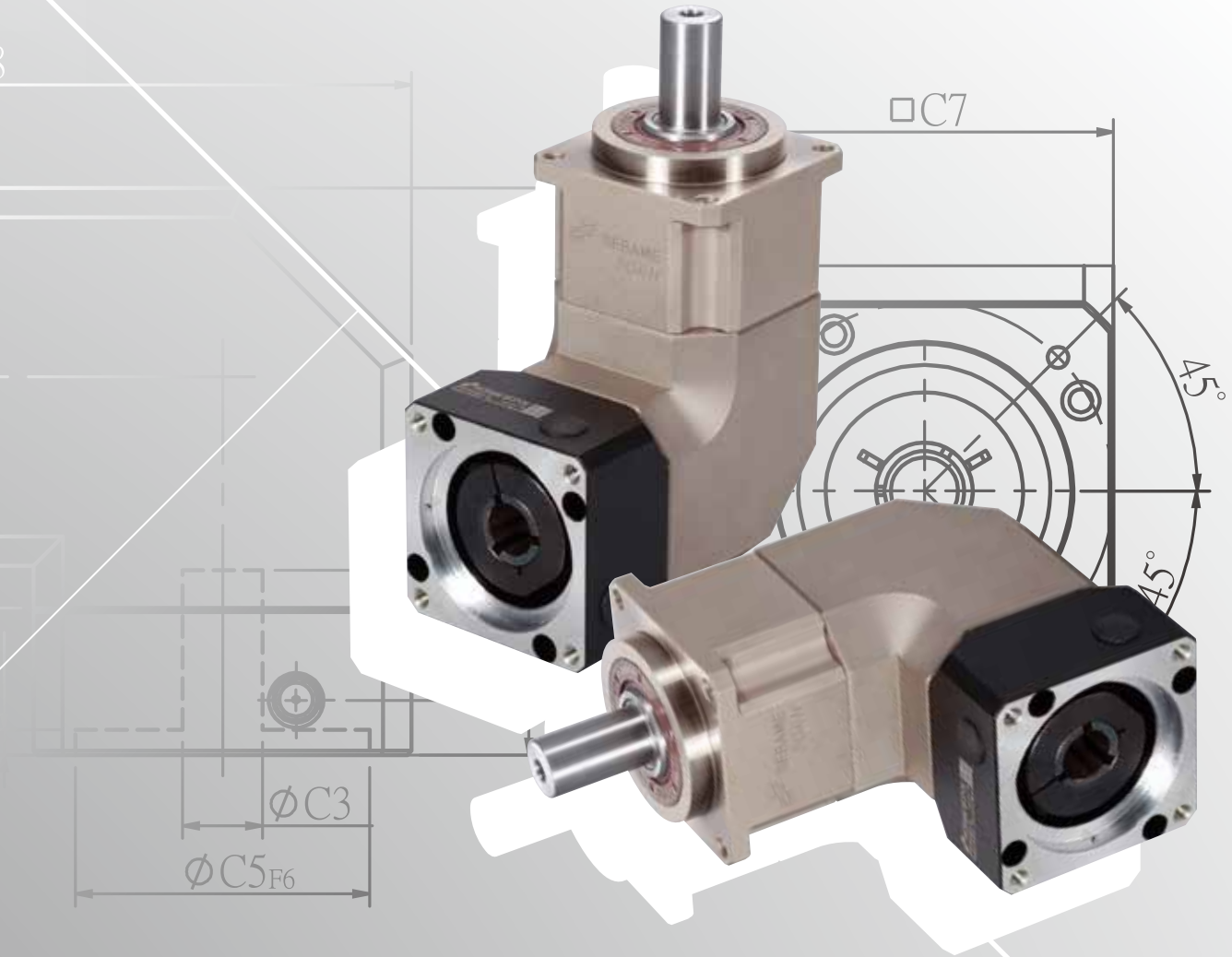
* 1. Applied to the output shaft center @100rpm.
* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

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

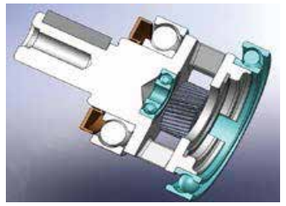
Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

PGRH SERIES



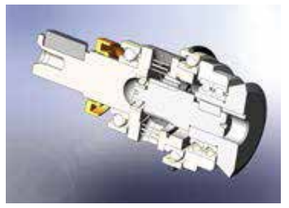

□C7
45°
45°
ØC3
ØC5F6

PGRH SERIES FEATURES



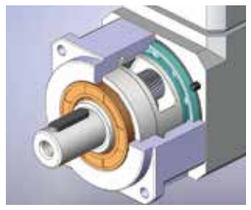
Planetary arm bracket and output shaft are one-piece constructed, setting bearing apart for larger span to reach the largest reverse rigid and contribute high axis radial load capacity.

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

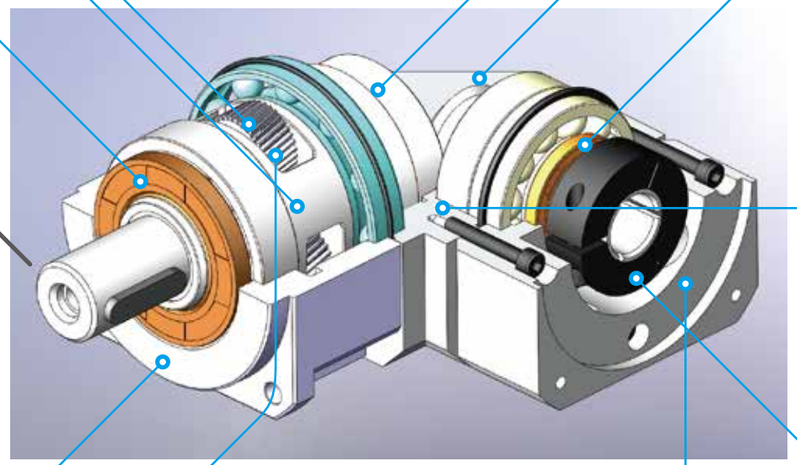


The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.

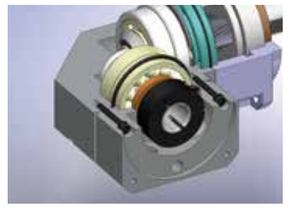
Alloy steel spiral bevel gears selected after hobbing and heat treatment to ensure high accuracy of the engagement point, low backlash and low noise.



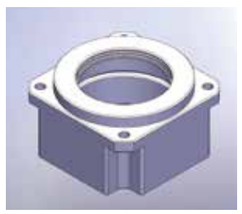
Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan.



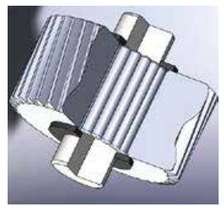
PGRH Series overall design suitable for combination operation with servo motor high-speed input and achieves maximum torque output. Right-angular designed drastically reducing the installation space. Precision gear design and gear processing create a planetary gearhead with low backlash operation, high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



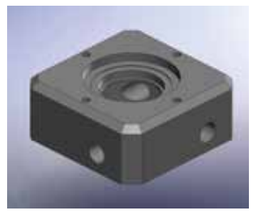
High-tech oil seal design on the upper lip guard against dust intruder, lower lip to guard against oil leak. Advanced lubricants grease and IP65 protection safeguards fully avoid leaking and given it maintenance-free.



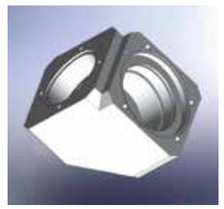
Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment.
The gear box and internal gear ring are one-piece constructed, and then processed with advanced Germany gear shaper machinery for high-precision, high torque and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



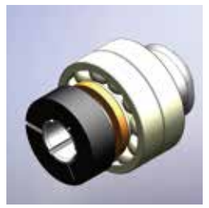
Planet gear transmission interface equipped with needle bearings, full needle roller bearings aligned without retainer achieve maximum exposure but smallest gap tolerances. Enhance over-all gear structure rigid and output torque.



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



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.



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.

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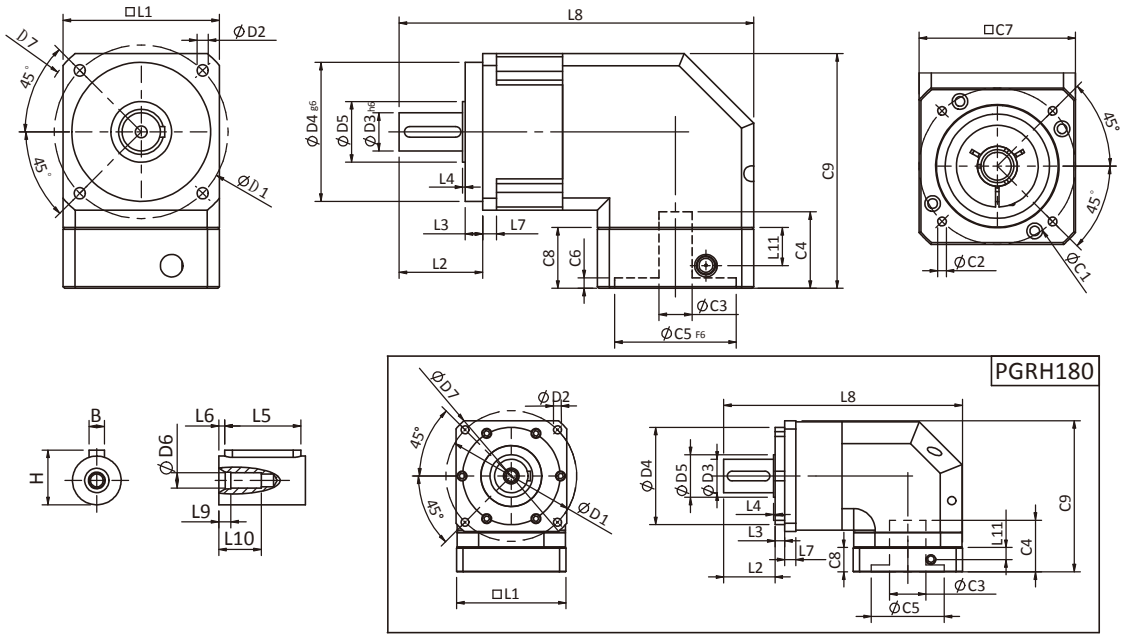
PGRH Single Stage Dimensions



Specifications

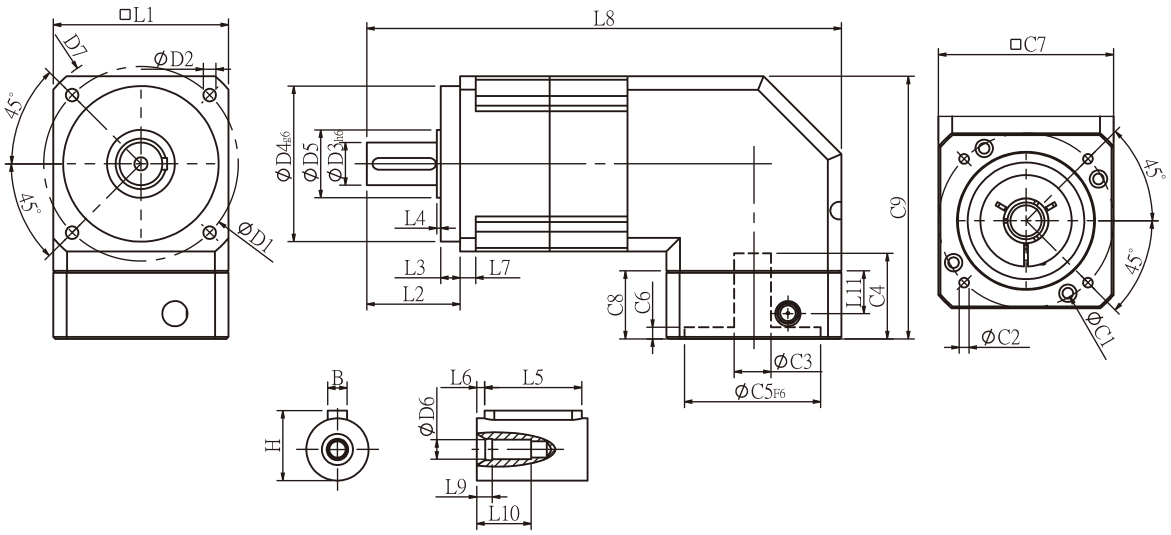
Unit:mm

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	M16x2P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	182	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	3.5	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	12	18	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	M6x1P	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	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 the motor flange chosen.

★ Specification subject to change without notice.

PGRH Double Stage Dimensions-1



Specifications

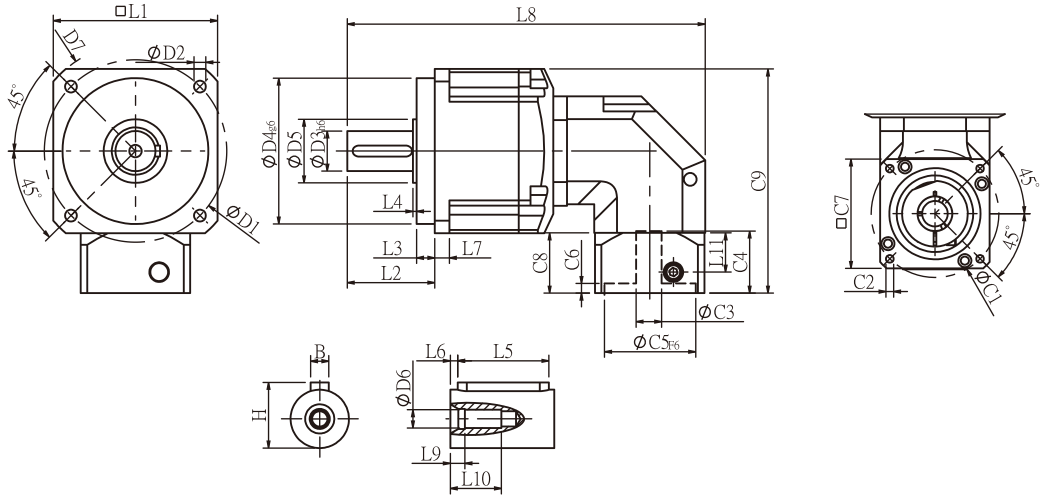
Unit:mm

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 the motor flange chosen.

★ 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	6	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	44	53	76	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 the motor flange chosen.

★ 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	19	53	145	220	380	750	950
			4	20	55	150	270	500	1000	1500
			5	17	54	140	290	600	1050	1800
			6	15	46	135	230	500	1000	1620
			7	14	44	125	270	530	960	1750
			8	12	41	110	240	470	900	1550
			9	11	37	95	220	430	800	1500
			10	17	50	130	260	530	900	1500
			14	14	44	125	270	530	960	1750
			20	11	37	95	220	430	800	1450
		Stage	Ratio	PGRH-42	PGRH-60 PGRH-60T	PGRH-90 PGRH-90T	PGRH-115T	PGRH-142T	PGRH-180T	PGRH-220T
		2	15	19	53	145	290	520	950	2000
			20	20	55	150	300	550	1000	2000
			25	17	54	140	290	600	1050	2000
			30	17	54	140	290	600	1050	2000
			35	17	54	140	290	600	1050	2000
			40	17	54	140	290	600	1050	2000
			45	17	54	140	290	600	1050	2000
			50	17	54	140	290	600	1050	2000
			60	15	46	135	280	560	1000	2000
			70	14	44	125	270	530	960	1750
			80	12	41	110	240	480	900	1700
			90	11	37	95	220	430	800	1500
			100	11	37	95	220	430	800	1450
			120	15	46	135	280	560	1000	1850
			140	14	44	125	270	530	960	1750
			160	12	41	110	240	480	900	1550
			180	11	37	95	220	430	800	1500
			200	11	37	95	220	430	800	1450
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 P0	arcmin	1	3-20	-	-	≦3	≦2	≦2	≦2	≦2
		2	15-200	-	-	≦5	≦4	≦4	≦4	≦4
Precision Backlash P1	arcmin	1	3-20	≦5	≦5	≦5	≦4	≦4	≦4	≦4
		2	15-200	≦7	≦7	≦7	≦7	≦7	≦7	≦7
Standard Backlash P2	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	2.5	6	12	23	50	150	220
Max. Radial Load F_{2rB}[1]	N	1,2	3-200	760	1570	2780	5340	9000	14000	31810
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	3-10	≧95%						
		2	15-200	≧92%						
Weight	kg	1	3-10	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	62	64	66	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		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 @100rpm.
* 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.

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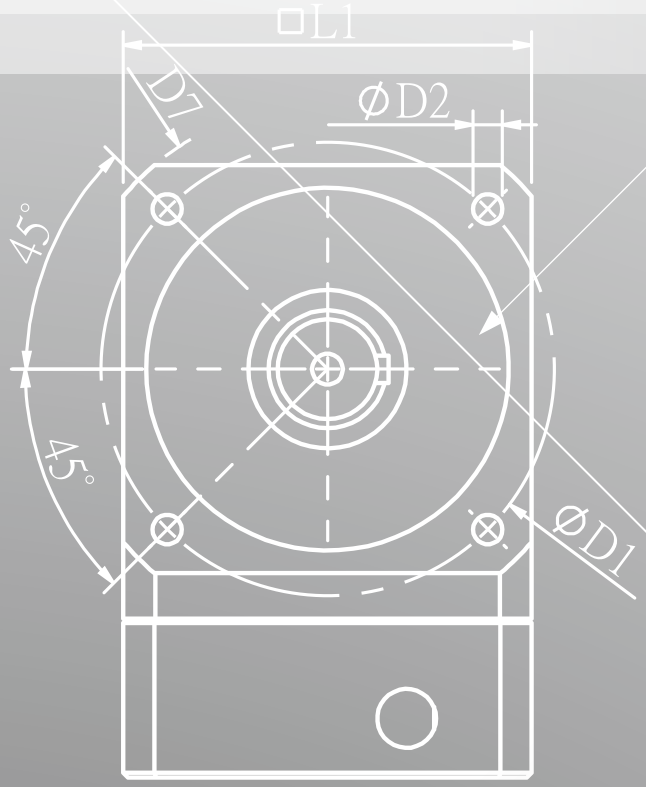
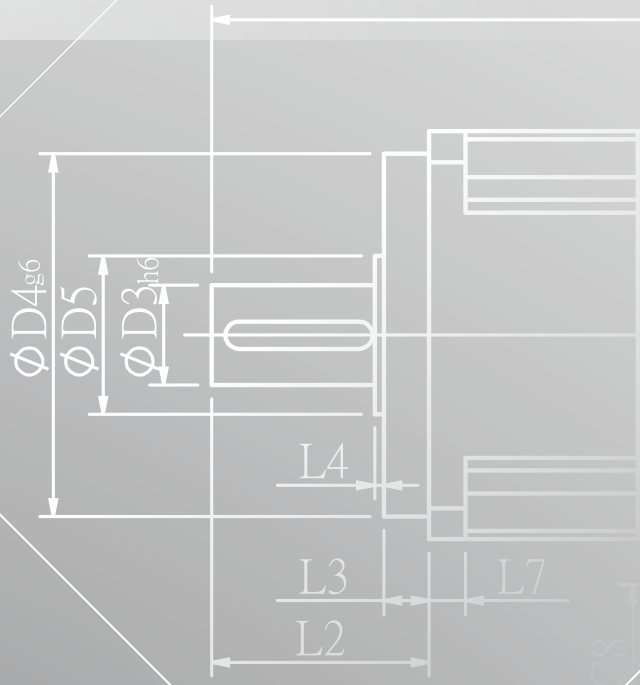
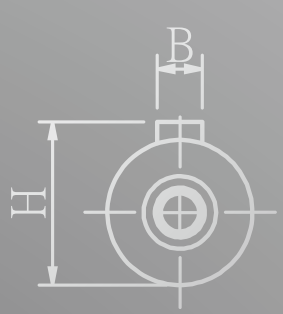
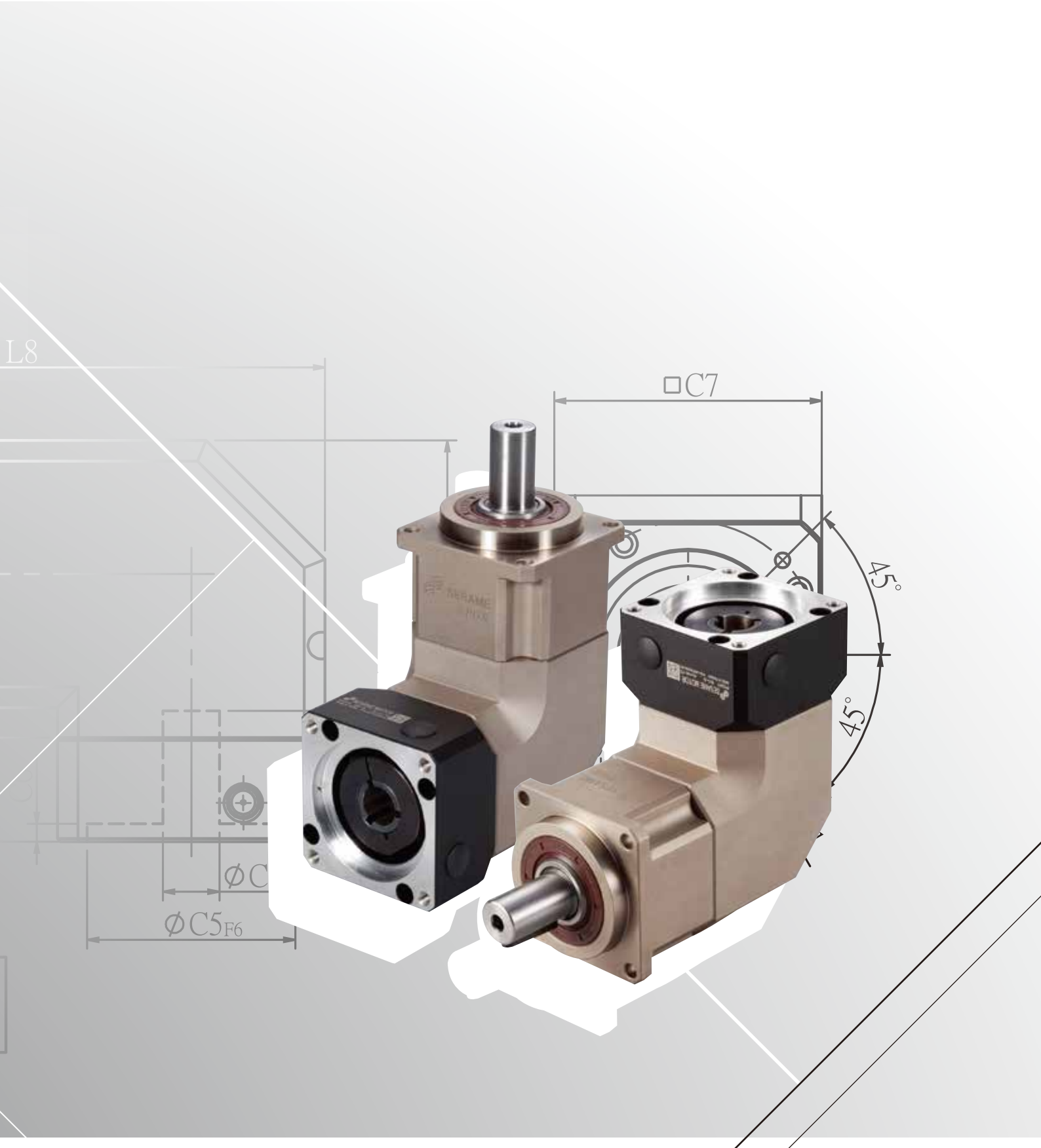
PGR SERIES

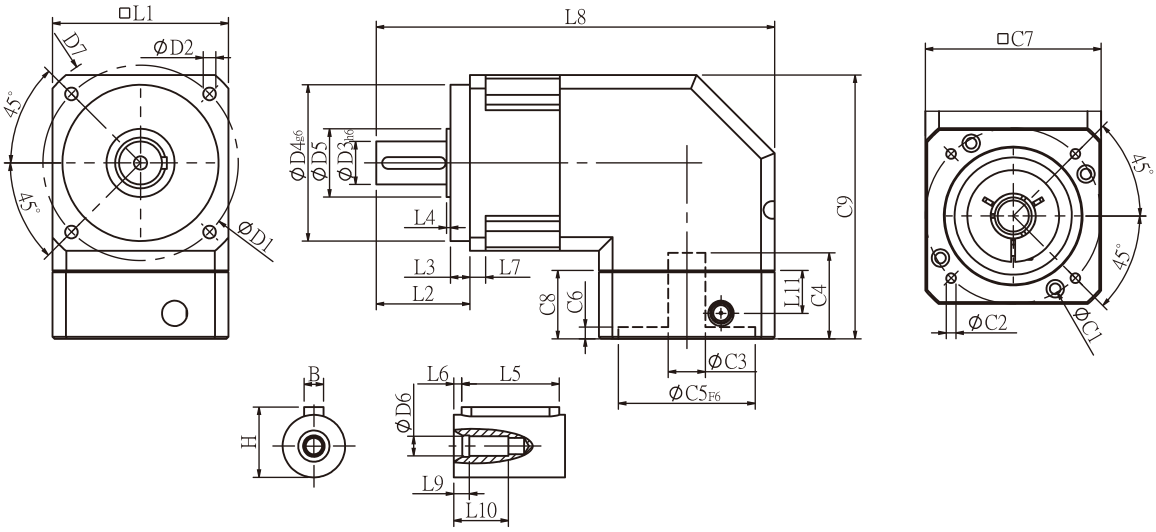







L8
□C7
45°
45°
ØC
ØC5F6

PGR Single Stage Dimensions



Specifications

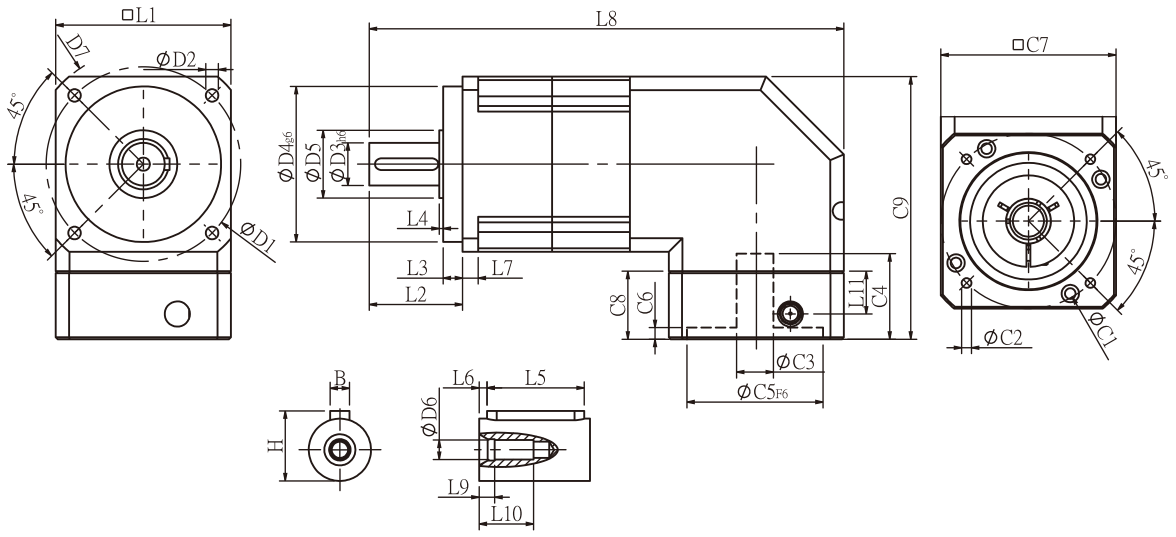
Unit:mm

Dimensions	PGR42	PGR60	PGR90	PGR115	PGR142
D1	50	70	100	130	165
D2	3.4	5.5	6.5	8.5	10.5
D3 h6	13	16	22	32	40
D4 g6	35	50	80	110	130
D5	15	25	35	45	50
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P
D7	56	80	118	148	186
L1	42.6	60	90	115	142
L2	26	37	48	62	93
L3	5.5	7	10	8	8
L4	1.5	1.5	1.5	3	6
L5	15	25	32	40	60
L6	2	2	3	5	5
L7	4	6	8	12	18
L8	103.6	148.7	204	244.5	330
L9	4	4	4.5	6	6
L10	14	16.5	20.5	30	38
L11	13.5	21.5	22	32	44.7
C1 [2]	46	70	90	115	145
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 [2]	≦8/≦11	≦14/≦19	≦19/≦24	≦24/≦32	≦35
C4 [2]	29	34	44	53	75
C5 [2] F6	30	50	70	95	110
C6 [2]	6	5	5	6	9
C7 [2]	42.6	60	90	115	140
C8 [2]	25	33	35	48	65
C9 [2]	70.8	107.8	135	174.5	207
B	5	5	6	10	12
H	15	18	24.5	35	43

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

★ Specification subject to change without notice.

PGR Double Stage Dimensions-1



Specifications

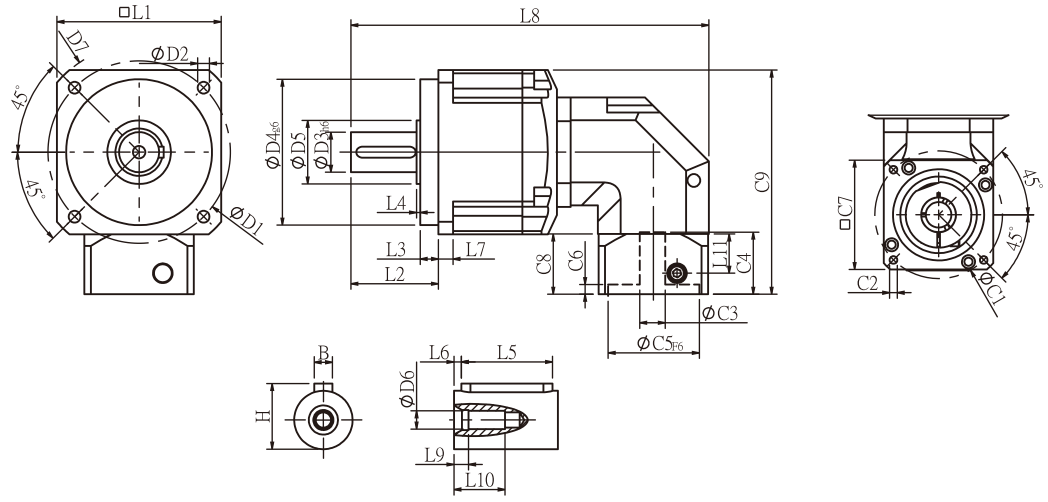
Unit:mm

Dimensions	PGR42	PGR60	PGR90	PGR115	PGR142
D1	50	70	100	130	165
D2	3.4	5.5	6.5	8.5	10.5
D3 h6	13	16	22	32	40
D4 g6	35	50	80	110	130
D5	15	25	35	45	50
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P
D7	56	80	118	148	186
L1	42.6	60	90	115	142
L2	26	37	48	62	93
L3	5.5	7	10	8	8
L4	1.5	1.5	1.5	3	6
L5	15	25	32	40	60
L6	2	2	3	5	5
L7	4	6	8	12	18
L8	129.6	176.7	244	292.5	391
L9	4	4	4.5	6	6
L10	14	16.5	20.5	30	38
L11	13.5	21.5	22	32	44.7
C1 [2]	46	70	90	115	145
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 [2]	≦8/≦11	≦14/≦19	≦19/≦24	≦24/≦32	≦35
C4 [2]	29	34	44	53	75
C5 [2] F6	30	50	70	95	110
C6 [2]	6	5	5	6	9
C7 [2]	42.6	60	90	115	140
C8 [2]	25	33	35	48	65
C9 [2]	70.8	107.8	135	174.5	207
B	5	5	6	10	12
H	15	18	24.5	35	43

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

★ Specification subject to change without notice.

PGR Double Stage Dimensions-2



Specifications

Unit:mm

Dimensions	PGR60T	PGR90T	PGR115T	PGR142T
D1	70	100	130	165
D2	5.5	6.5	8.5	10.5
D3 h6	16	22	32	40
D4 g6	50	80	110	130
D5	25	35	45	50
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P
D7	80	118	148	186
L1	60	90	115	142
L2	37	48	62	93
L3	7	10	8	8
L4	1.5	1.5	3	6
L5	25	32	40	60
L6	2	3	5	5
L7	6	8	12	18
L8	145.1	196.2	269.4	343.5
L9	4	4.5	6	6
L10	16.5	20.5	30	38
L11	13.5	21.5	22	32
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
C4 [2]	29	34	44	53
C5 [2] F6	30	50	70	95
C6 [2]	6	5	5	6
C7 [2]	42.6	60	90	115
C8 [2]	25	33	35	48
C9 [2]	79.5	122.8	147.5	188
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 the motor flange chosen.

★ Specification subject to change without notice.

PGR Specifications Table

Specifications		Stage	Ratio	PGR-42	PGR-60	PGR-90	PGR-115	PGR-142
Nominal Output Torque T_{2N}	N • m	1	3	13.8	35.3	76.2	220	380
			4	11.9	35.9	74.6	249	450
			5	13.8	43.0	95.2	283	473
			6	12.5	39.4	90.9	266	436
			7	11.9	36.0	85.6	219	400
			8	10.9	32.4	85.0	216	363
			9	9.8	28.7	80.0	210	320
			10	13.8	43.0	95.2	260	473
		Stage	Ratio	PGR-42	PGR-60 (T)	PGR-90(T)	PGR-115(T)	PGR-142(T)
		2	15	13.8	44.2	95.2	283	482
			20	11.9	35.9	74.6	249	490
			25	13.8	43.0	95.2	283	473
			30	13.8	43.0	95.2	283	473
			35	13.8	43.0	95.2	283	473
			40	13.8	43.0	95.2	283	473
			45	13.8	43.0	95.2	283	473
			50	13.8	43.0	95.2	283	473
			60	12.5	39.4	90.9	266	436
			70	11.9	36.0	85.6	219	400
			80	10.9	32.4	85.0	216	363
			90	9.8	28.7	80.0	210	320
			100	10.1	25.0	75.0	210	320
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	3000	3000	3000	2500	2000
Max. Input Speed n_{1max}	rpm	1,2	3-100	6000	6000	6000	5000	4000
Micro Backlash P0	arcmin	1	3-10	-	-	-	≦4	≦4
		2	15-100	-	-	-	≦6	≦6
Precision Backlash P1	arcmin	1	3-10	-	-	≦6	≦6	≦6
		2	15-100	-	-	≦9	≦8	≦8
Standard Backlash P2	arcmin	1	3-10	≦12	≦9	≦9	≦9	≦9
		2	15-100	≦15	≦12	≦12	≦11	≦11
Torsional Rigidity	N • m /arcmin	1,2	3-100	1.0	2.8	7.5	15.5	30
Max. Radial Load F_{2rB} [1]	N	1,2	3-100	350	960	1630	3380	6150
Max. Axial Load F_{2aB} [1]	N	1,2	3-100	320	900	1420	2930	5510
Operating Temp.	°C		3-100	-10 °C ~+90 °C				
Service Life	hr		3-100	20,000 (10,000/ Continuous operation)				
Efficiency	%	1	3-10	≧94%				
		2	15-100	≧90%				
Weight	kg	1	3-10	1.0	2.5	6.5	13.2	24.6
		2	15-100	1.3	3.2/2.8	8.6/6.9	17.7/14.5	29.7/26.2
Mounting Position	-	1,2	3-100	Any direction				
Noise Level [2]	dBA/1m	1,2	3-100	65	67	70	70	75
Protection Class	-	1,2	3-100	IP65				
Lubrication	-	1,2	3-100	Synthetic Lubricant				

Inertia(J1)

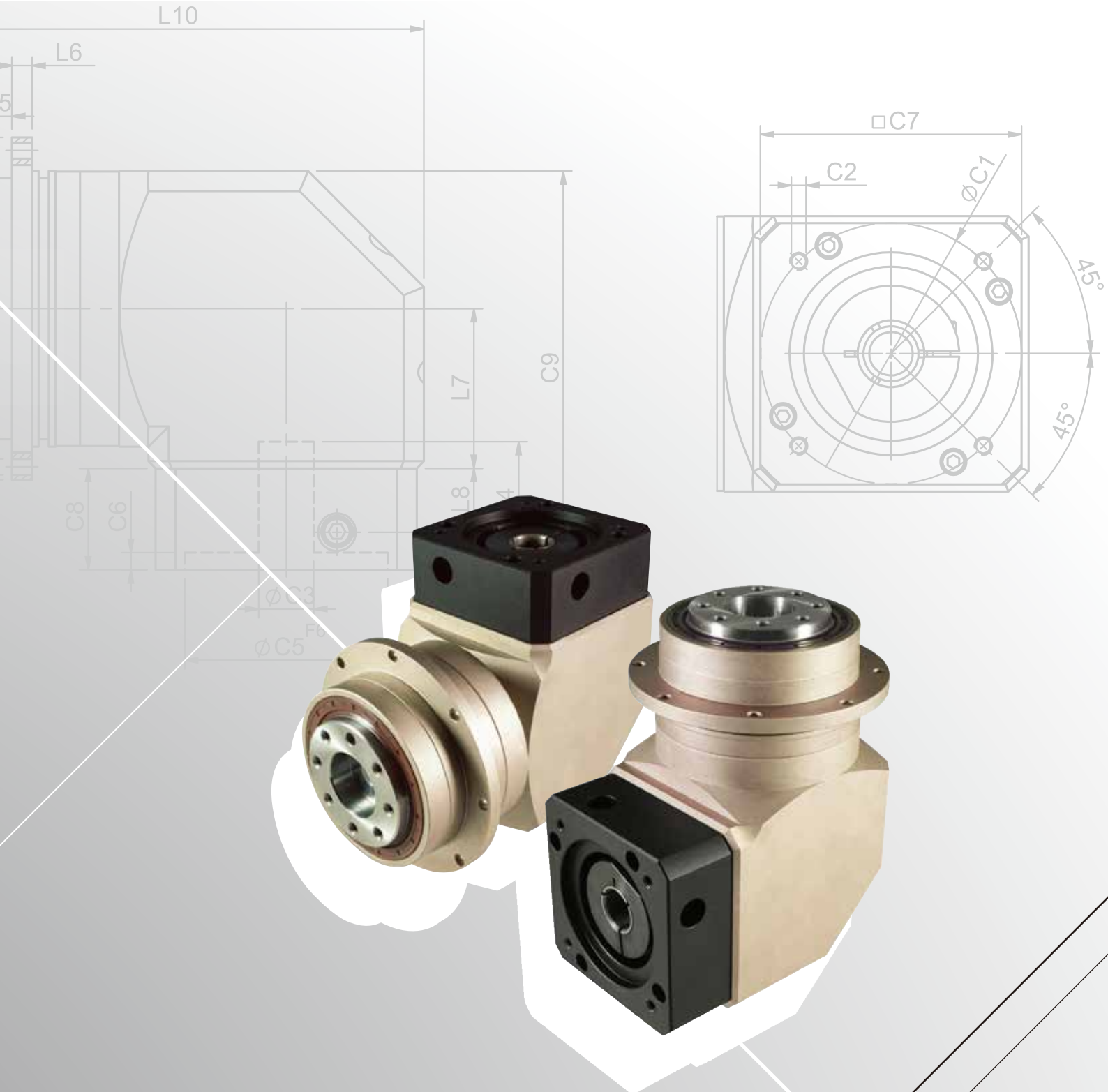
Stage	Ratio	unit	PGR-42	PGR-60	PGR-90	PGR-115	PGR-142
1	3/4/5/7/9	Kg • cm^2	0.06	0.40	2.28	6.87	24.2
	6/8/10		0.05	0.30	1.45	4.76	14.5
Stage	Ratio		PGR-42	PGR-60(T)	PGR-90(T)	PGR-115(T)	PGR-142(T)
2	15/20/25/35/45		0.06	0.40(0.08)	2.28(0.72)	6.87(3.02)	24.2(7.83)
	others		0.05	0.30(0.06)	1.45(0.38)	4.76(1.64)	14.5(5.00)

* 1. Applied to the output shaft center @100rpm. * 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.
* 3. PGR115T - □□ - P0 is not applicable.
※ The above figures/specifications are subject to change without prior notice.

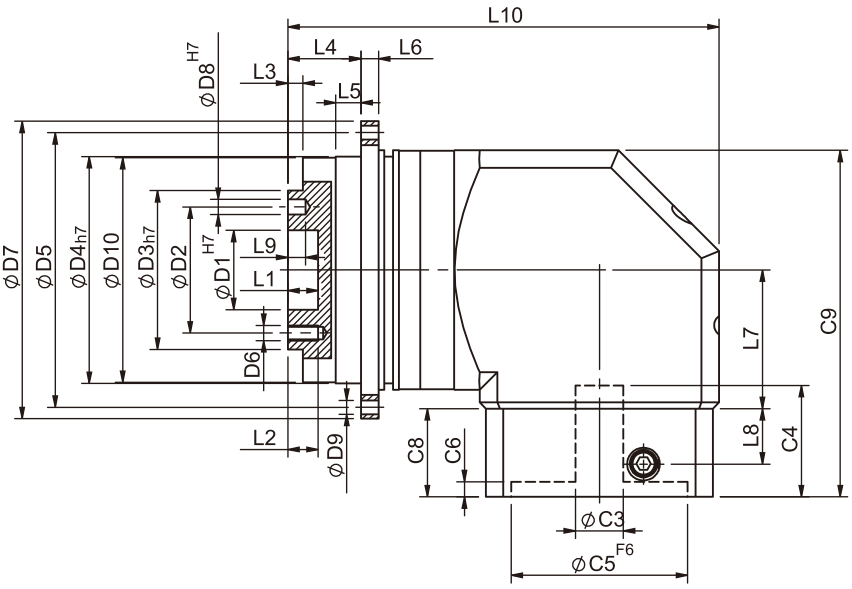
Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

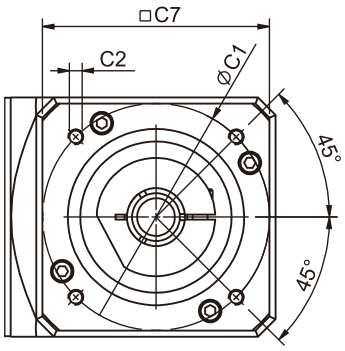
PGFR SERIES


1xD8H7
ØD2
4xD6
ØD4h7
ØD1H7
ØD3h7
ØD5
8xD9
7xD6
11-D6
L4
L3
L9
L1


L10
L6
C9
L7
C8
C6
ØC3
ØC5
□C7
C2
ØC1
45°
45°

PGFR Single Stage Dimensions





Specifications

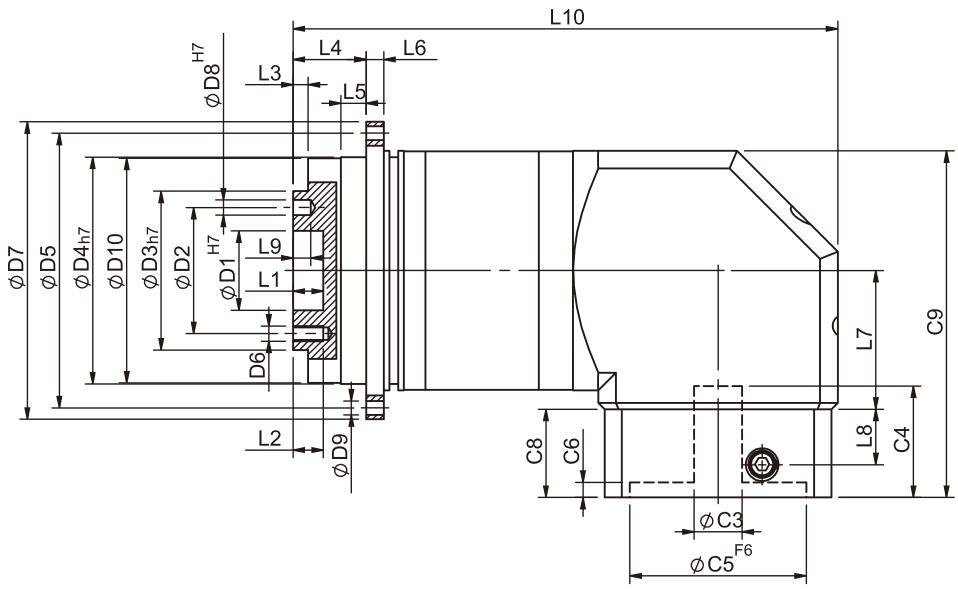
Unit:mm

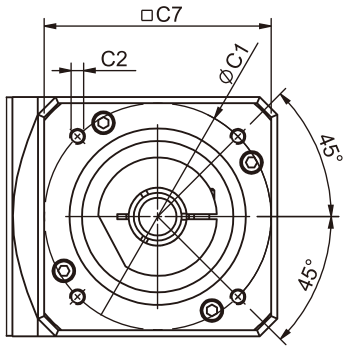
Dimensions	PGFR42	PGFR60	PGFR90	PGFR115
D1 H7	12	20	31.5	40
D2	20	31.5	50	63
D3 h7	28	40	63	80
D4 h7	47	64	90	110
D5	67	79	109	135
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P
D7	72	86	118	145
D8 H7	3	5	6	6
D9	3.4	4.5	5.5	5.5
D10	46.2	63.2	89.2	109.2
L1	4	8	12	12
L2	6	7.2	12	13.5
L3	3	3	6	6
L4	19.5	19.5	29	29
L5	7	7	10	10
L6	4	4	7	8
L7	32.2	44.8	55	69
L8	13.5	21.5	22	32
L9	4	6	7	7
L10	92.2	123.9	171.1	200.2
C1 [2]	46	70	90	90
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M6x1.0P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦32
C4 [2]	29	34	44	53.5
C5 [2] F6	30	50	70	70
C6 [2]	6	5	5	5.5
C7 [2]	42.6	60	90	115
C8 [2]	25	33	35	48
C9 [2]	78.5	112.8	137.5	176.5

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

★ Specification subject to change without notice.

PGFR Double Stage Dimensions-1





Specifications

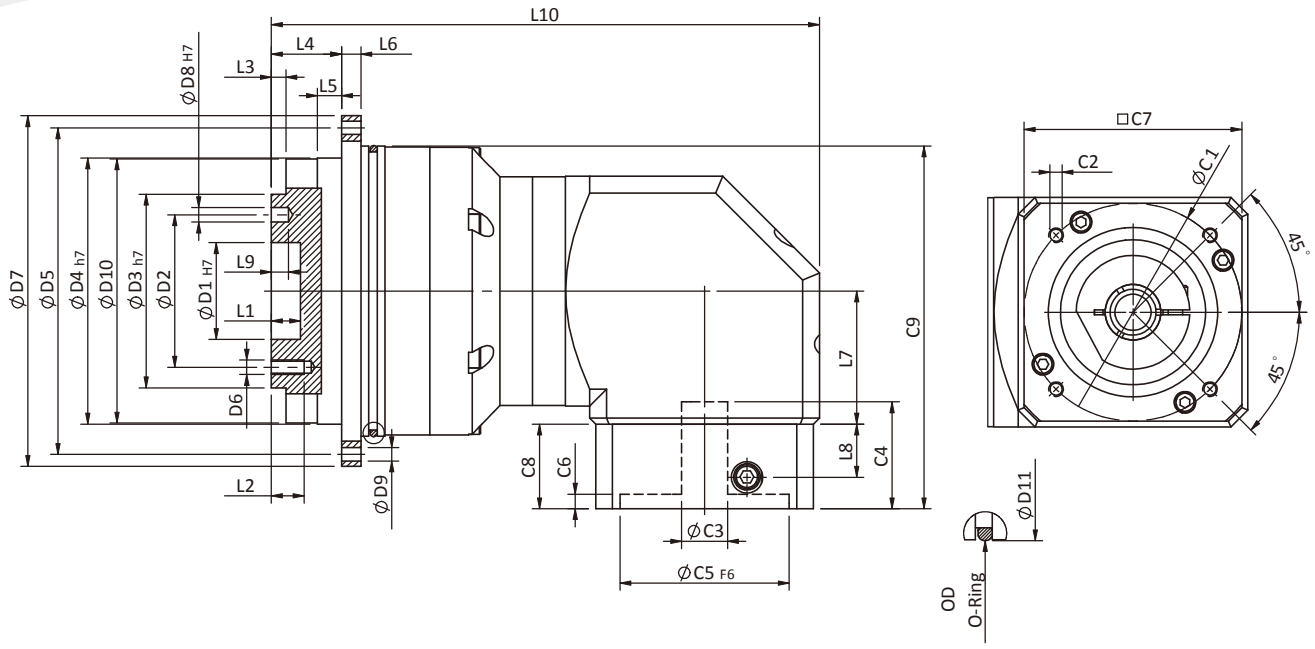
Unit:mm

Dimensions	PGFR42	PGFR60	PGFR90
D1 H7	12	20	31.5
D2	20	31.5	50
D3 h7	28	40	63
D4 h7	47	64	90
D5	67	79	109
D6	M3x0.5P	M5x0.8P	M6x1.0P
D7	72	86	118
D8 H7	3	5	6
D9	3.4	4.5	5.5
D10	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	32.2	44.8	55
L8	13.5	21.5	22
L9	4	6	7
L10	119.9	159.3	216.1
C1 [2]	46	70	90
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P
C3 [2]	≦8	≦14	≦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]	78.5	112.8	137.5

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

★ Specification subject to change without notice.

PGFR Double Stage Dimensions-2



Specifications

Unit:mm

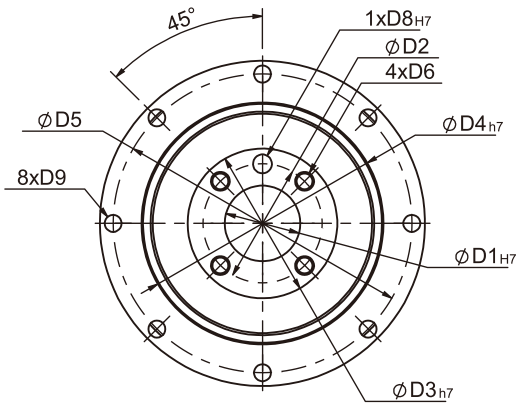
Dimensions	PGFR60T	PGFR90T	PGFR115T	PGFR142T
D1 H7	20	31.5	40	50
D2	31.5	50	63	80
D3 h7	40	63	80	100
D4 h7	64	90	110	140
D5	79	109	135	168
D6	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P
D7	86	118	145	179
D8 H7	5	6	6	8
D9	4.5	5.5	5.5	6.6
D10	63.2	89.2	109.2	139.2
D11	70	95	120	152
L1	8	12	12	12
L2	7.2	12	13.5	16
L3	3	6	6	6
L4	19.5	29	29	38
L5	7	10	10	14.6
L6	4	7	8	10
L7	32.2	44.8	55	69
L8	13.5	21.5	22	32
L9	6	7	7	7
L10	126.6	171.3	226.6	270.7
C1 [2]	46	70	90	90
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M6x1.0P
C3 [2]	≦8/≦11	≦14/≦19	≦19/≦24	≦24/≦32
C4 [2]	29	34	44	53.5
C5 [2] F6	30	50	70	70
C6 [2]	6	5	5	5.5
C7 [2]	42.6	60	90	115
C8 [2]	25	33	35	48
C9 [2]	84.4	125.3	150	176.5
OD	66x2	90x3	110x3	145x3

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

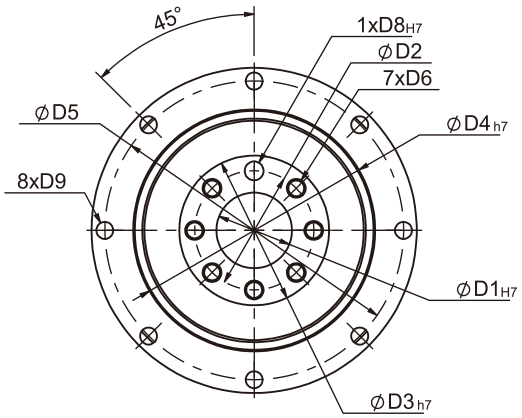
★ Specification subject to change without notice.

PGFR Flange Dimensions

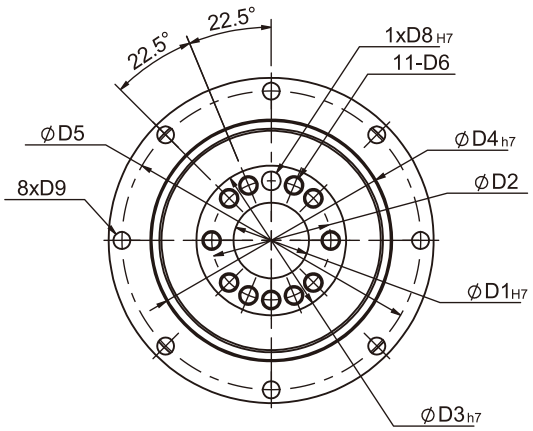
PGFR42



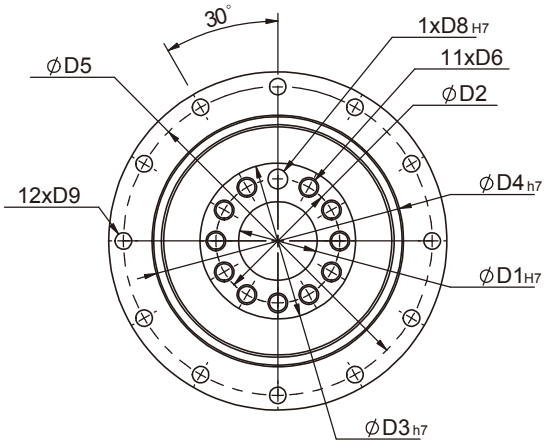
PGFR60
PGFR90



PGFR115



PGFR142



Specifications

Unit:mm

Dimensions	PGFR42	PGFR60	PGFR90	PGFR115	PGFR142
D1 H7	12	20	31.5	40	50
D2	20	31.5	50	63	80
D3 h7	28	40	63	80	100
D4 h7	47	64	90	110	140
D5	67	79	109	135	168
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P
D8 H7	3	5	6	6	8
D9	3.4	4.5	5.5	5.5	6.6

★ Specification subject to change without notice.

PGFR Specifications Table

Specifications		Stage	Ratio	PGFR-42	PGFR-60	PGFR-90	PGFR-115	PGFR-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	17	50	130	260	540
			14	14	44	125	270	530
			20	11	37	95	220	430
		Stage	Ratio	PGFR-42	PGFR-60 PGFR-60T	PGFR-90 PGFR-90T	PGFR-115T	PGFR-142T
		2	15	-	40	105	180	600
			20	16	43	110	240	600
			25	17	50	130	290	600
			30	17	40	105	180	600
			35	17	50	130	290	600
			40	16	43	110	240	600
			50	17	50	130	290	600
			70	14	44	125	270	530
			100	11	37	95	220	430
			140	14	44	125	270	530
			200	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	3-200	5000	5000	4000	4000	3000
Max. Input Speed n_{1max}	rpm	1,2	3-200	10000	10000	8000	8000	5000
Micro Backlash P0	arcmin	1	3-20	-	-	≦4	≦2	≦2
		2	15-200	-	-	≦6	≦4	≦4
Precision Backlash P1	arcmin	1	3-20	≦6	≦6	≦6	≦4	≦4
		2	15-200	≦8	≦8	≦8	≦7	≦7
Standard Backlash P2	arcmin	1	3-20	≦8	≦8	≦8	≦6	≦6
		2	15-200	≦10	≦10	≦10	≦9	≦9
Torsional Rigidity	N • m /arcmin	1,2	3-200	6	12	28	75	145
Max. Bending Moment M_{2kB} [1]	N • m	1,2	3-200	22.5	36	76	140	950
Max. Axial Load F_{2aB} [1]	N	1,2	3-200	465	635	1060	1580	6400
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	1.1	2.2	6.3	13.5	25.1
		2	15-200	1.6	2.9/2.1	8.3/5.0	14 8	26.7
Mounting Position	-	1,2	3-200	Any direction				
Noise Level [2]	dBA/1m	1,2	3-200	62	64	66	68	70
Protection Class	-	1,2	3-200	IP65				
Lubrication	-	1,2	3-200	Synthetic Lubricant				

Inertia(J1)

Stage	Ratio	unit	PGFR-42	PGFR-60	PGFR-90	PGFR-115	PGFR-142
1	3/4/5/7/9	Kg • cm^2	0.06	0.40	2.28	6.87	24.2
	10/14/20		0.05	0.30	1.45	4.76	14.5
Stage	Ratio		PGFR-42	PGFR-60(T)	PGFR-90(T)	PGFR-115T	PGFR-142T
2	15/20/25/35		0.06	0.40(0.08)	2.28(0.72)	3.02	7.83
	others		0.05	0.30(0.06)	1.45(0.38)	1.64	5.00

* 1. Applied to the output shaft center @100rpm.
* 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.