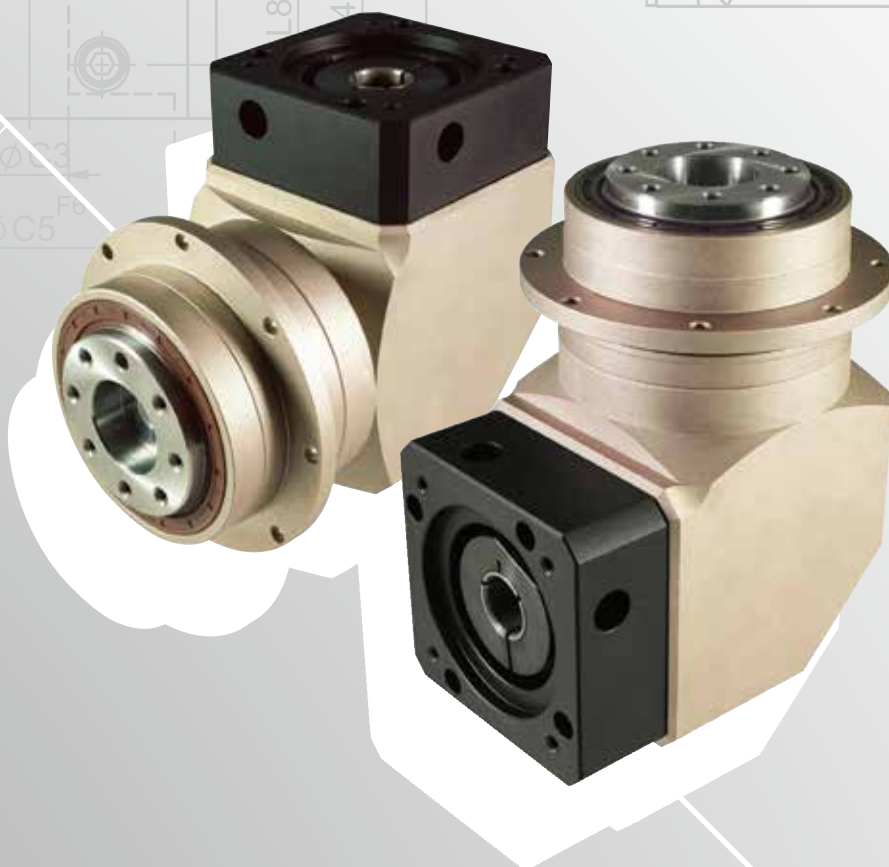
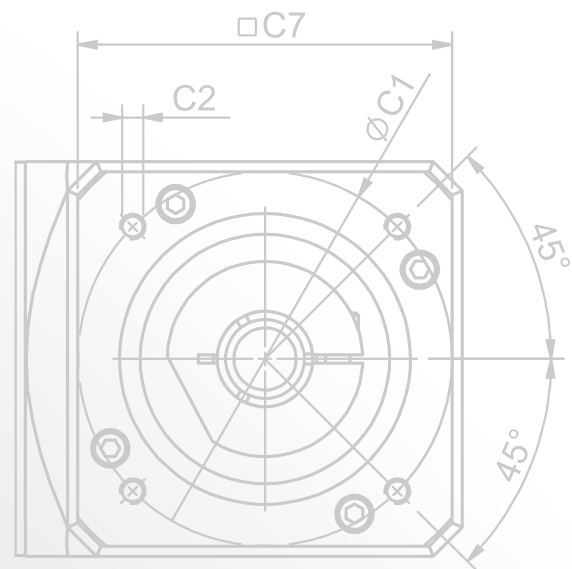
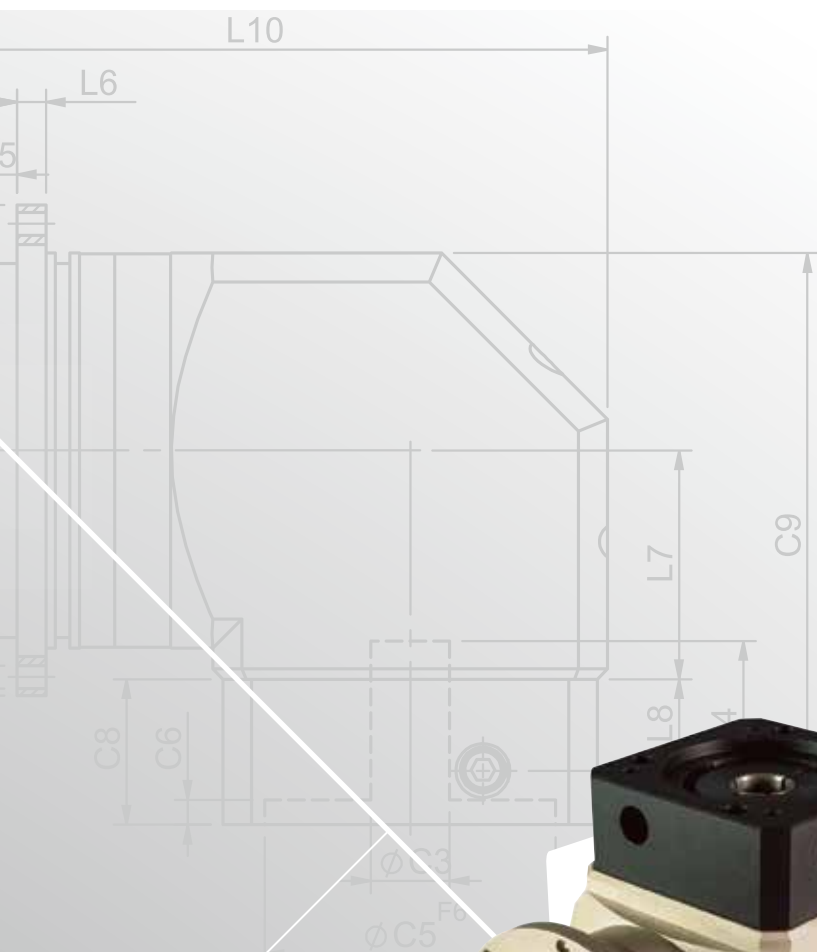
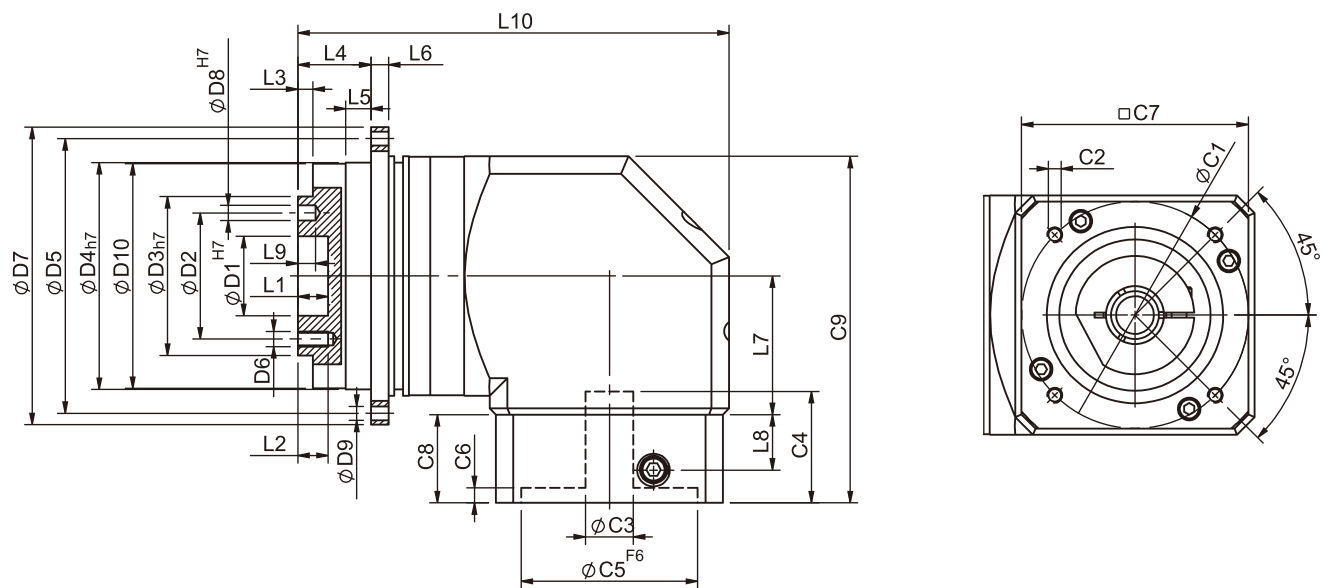


PGFR SERIES





PGFR Single Stage Dimensions



Specifications

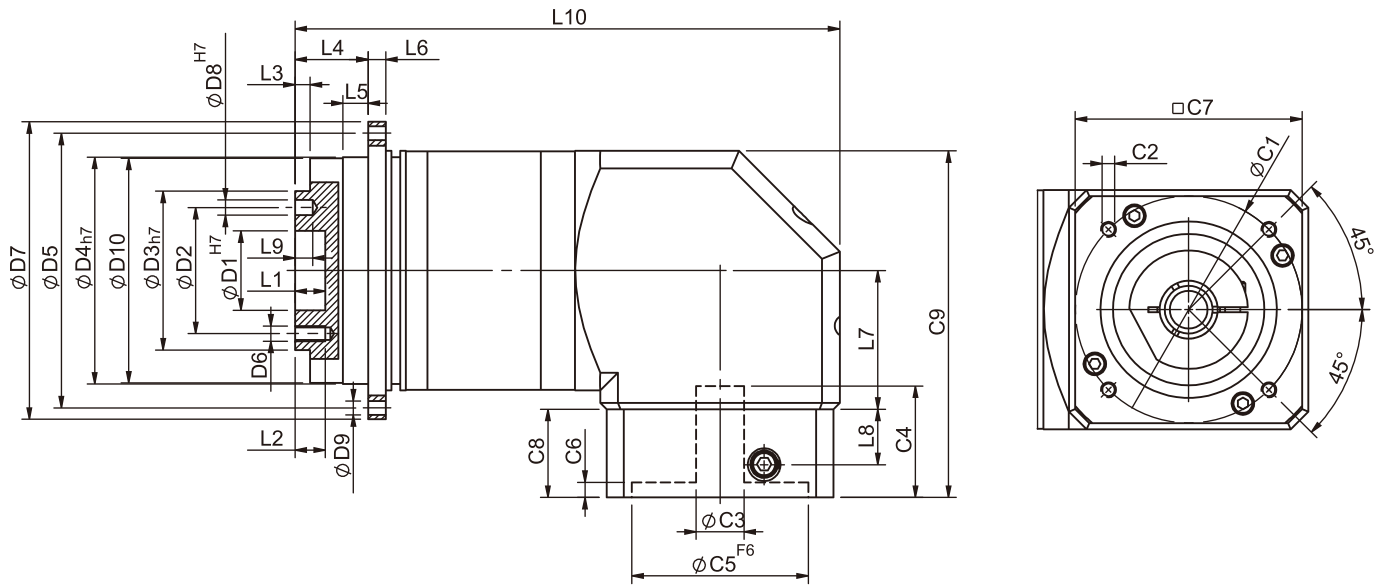
Unit:mm

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

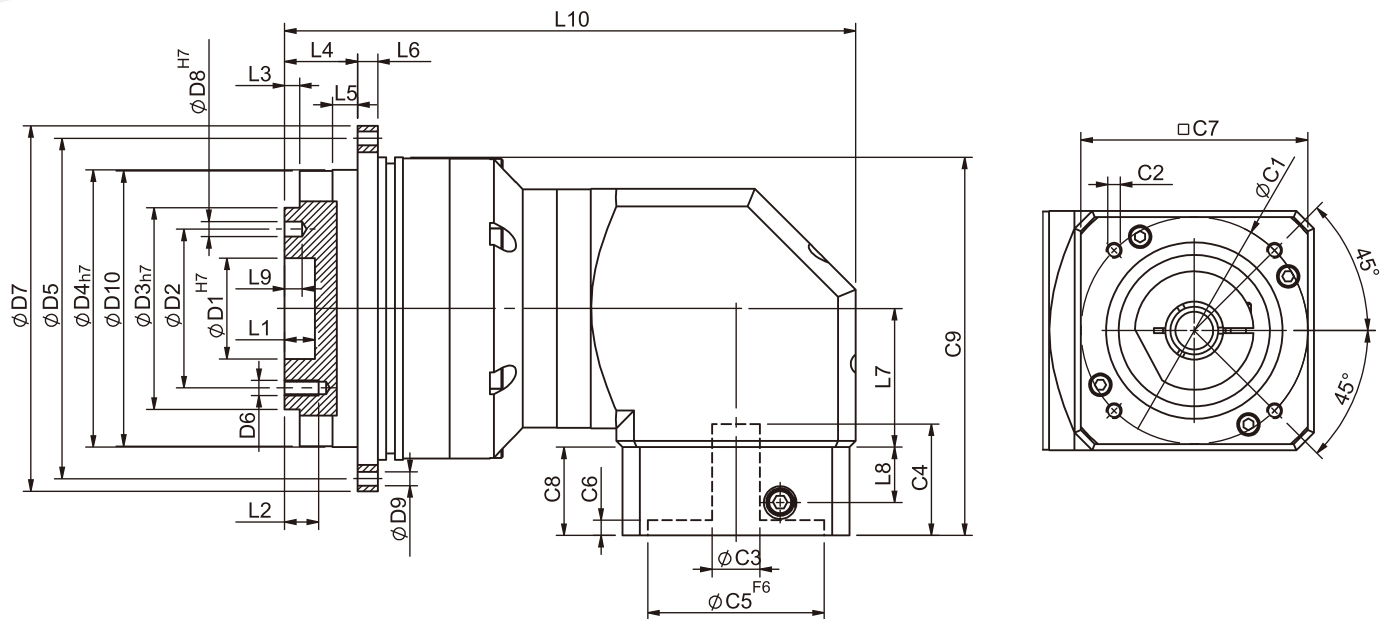
Unit:mm

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

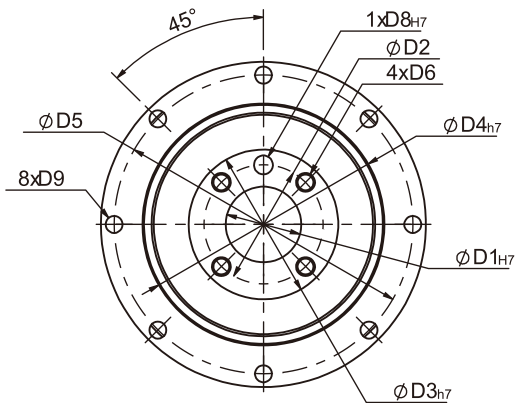
Dimensions	PGFR60T	PGFR90T	PGFR115T
D1 ^{H7}	20	31.5	40
D2	31.5	50	63
D3 ^{H7}	40	63	80
D4 ^{H7}	64	90	110
D5	79	109	135
D6	M5x0.8P	M6x1.0P	M6x1.0P
D7	86	118	145
D8 ^{H7}	5	6	6
D9	4.5	5.5	5.5
D10	63.2	89.2	109.2
L1	8	12	12
L2	7.2	12	13.5
L3	3	6	6
L4	19.5	29	29
L5	7	10	10
L6	4	7	8
L7	32.2	44.8	55
L8	13.5	21.5	22
L9	6	7	7
L10	126.6	171.3	226.6
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 F ₆	30	50	70
C6 ²	6	5	5
C7 ²	42.6	60	90
C8 ²	25	33	35
C9 ²	84.4	125.3	150

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

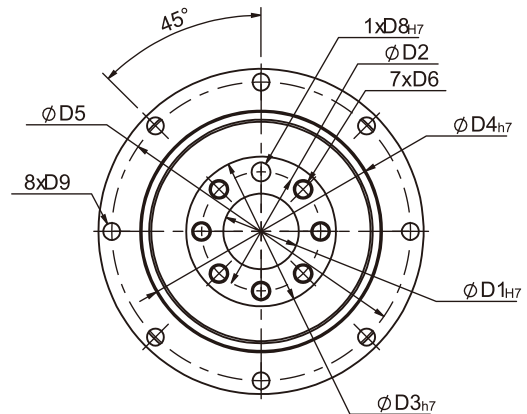
★ Specification subject to change without notice.

PGFR Flange Dimensions

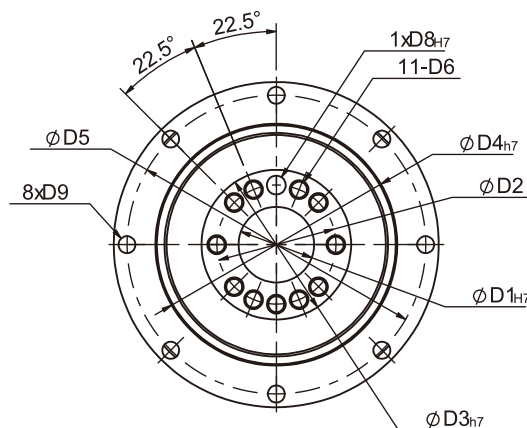
PGFR42



PGFR60
PGFR90



PGFR115



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
D8 H7	3	5	6	6
D9	3.4	4.5	5.5	5.5

★ Specification subject to change without notice.

PGFR Specifications Table

Specifications		Stage	Ratio	PGFR-42	PGFR-60	PGFR-90	PGFR-115
Nominal Output Torque T_{2N}	$N \cdot m$	1	3	-	40	105	180
			4	16	43	110	240
			5	17	50	130	290
			7	14	44	125	270
			10	11	37	95	220
			14	14	44	125	270
			20	11	37	95	220
		Stage	Ratio	PGFR-42	PGFR-60 PGFR-60T	PGFR-90 PGFR-90T	PGFR-115T
		2	15	-	40	105	180
			20	16	43	110	240
			25	17	50	130	290
			30	17	40	105	180
			35	17	50	130	290
			40	16	43	110	240
			50	17	50	130	290
			70	14	44	125	270
			100	11	37	95	220
			140	14	44	125	270
			200	11	37	95	220
Emergency Stop Torque T_{2NOT}	$N \cdot m$	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
Max. Input Speed n_{1max}	rpm	1,2	3-200	10000	10000	8000	8000
Micro Backlash P0	arcmin	1 2	3-20 15-200	- -	- -	≤ 4 ≤ 6	≤ 2 ≤ 4
Precision Backlash P1	arcmin	1 2	3-20 15-200	≤ 6 ≤ 8	≤ 6 ≤ 8	≤ 6 ≤ 8	≤ 4 ≤ 7
Standard Backlash P2	arcmin	1 2	3-20 15-200	≤ 8 ≤ 10	≤ 8 ≤ 10	≤ 8 ≤ 10	≤ 6 ≤ 9
Torsional Rigidity	$N \cdot m$ /arcmin	1,2	3-200	6	12	28	75
Max. Bending Moment M_{2KB}^1	$N \cdot m$	1,2	3-200	22.5	36	76	140
Max. Axial Load F_{2aB}^1	N	1,2	3-200	465	635	1060	1580
Operating Temp.	$^{\circ}C$		3-200	-10 $^{\circ}C$ ~ +90 $^{\circ}C$			
Service Life	hr		3-200	20,000 (10,000/Continuous operation)			
Efficiency	%	1 2	3-20 15-200	$\geq 95\%$ $\geq 92\%$			
Weight	kg	1 2	3-20 15-200	1.1 1.6	2.2 2.9/2.1	6.3 8.3/5.0	13.5 14.8
Mounting Position	-	1,2	3-200	Any direction			
Noise Level ²	dBA/1m	1,2	3-200	62	64	66	68
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
1	3/4/5/7/9	Kg \cdot cm ²		0.06	0.40	2.28	6.87
	10/14/20			0.05	0.30	1.45	4.76
Stage	Ratio			PGFR-42	PGFR-60(T)	PGFR-90(T)	PGFR-115T
2	15/20/25/35			0.06	0.40(0.08)	2.28(0.72)	3.02
	others			0.05	0.30(0.06)	1.45(0.38)	1.64

* 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.

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