

BEST CNC TECHNOLOGY IN  
**GEAR REDUCERS**  
PLANETARY GEAR REDUCERS

**CORPORATE & MANUFACTURING**

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**TOMATECH**  
**PERFECT**  
CNC INDUSTRIAL EQUIPMENTS

THE MOST COMPLETE INDUSTRIAL CNC EQUIPMENTS ON THE MARKET

### PLANETARY GEAR REDUCER APPLICATION



### GEAR REDUCER



### SERVO MOTOR & DRIVE



## TOMATECH

TOMATECH (SHENZHEN)AUTOMATION CO., LIMITED (TOMATECH) was founded in 2003, is a modern, hi-tech enterprise integrating development, production and sales & service of CNC controllers and industrial automation products. Its products basically cover controls for various CNC lathes, milling machines, and machining centers and other machinery industry. TOMATECH has several tens types of products dominated by TAC-1000T ,TAC-2000M series, meeting requirements for 1-5 axis machines, CNC lathes , milling machines, and machining centers in sector of machine tool, and providing enough options to different users.



SV Technologies is a young enterprise which is full of vitality. It is one of the best domestic automation system solution providers. We are pleasure to provide high and professional service to our customers. We aim to offer a comprehensive quality products with full-fledged technologies in automation industry.

As a Supplier, Wholesaler, Distributor, and Service Provider of CNC and other industrial related products .



## STANDARD SERIES PLANETARY GEAR REDUCER


### PM SERIES



- \* Double brace cage type planetary structure. Reliable and suit for frequently reversing.
- \* Helical gear transmission, more smooth and stable
- \* Larger Load Capacity.
- \* Less backlash, high positioning accuracy
- \* Special bogie structure, can bear the larger axial and radial force.

Dimension Size : 60-180  
 Gear Ratio Range : 3-100  
 Accuracy Range : 1-3 arcmin (P1)  
 3-5 arcmin (P2)  
 5-8 arcmin (P3)

### PM SERIES

PM	90	L1	5	P1	
Series	Specification	Stage	Gear Ratio	Backlash	Output Type
	60,90,120, 140,180,220	L1=1 L2=2	L1:3,4,5,6,7,8,9,10 L2:15,20,35,40,50, 80,100	P1= Standard P2=High Precision	S1= Empty Shaft None= With key

Can make the dimension according customer's drawing


### PG SERIES



- \* Unique flange output type, more flexible for mounting
- \* More compact, less mounting space
- \* Less backlash, high positioning accuracy
- \* Double brace cage type planetary structure. Reliable and suit for frequently reversing.
- \* Bogie using tapered roller bearing (TRB), meet the heavy load requirements.

Dimension Size : 60-200  
 Gear Ratio Range : 3-100  
 Accuracy Range : 1-3 arcmin (P1)  
 3-5 arcmin (P2)  
 5-8 arcmin (P3)

### PG SERIES

PG	90	L1	5	P1	
Series	Specification	Stage	Gear Ratio	Backlash	Output Type
	60,90,120, 140,180,220	L1=1 L2=2	L1:3,4,5,6,7,10 L2:20,25,40,50, 80,100	P1= Standard P2=High Precision	S1= Empty Shaft None= With key

Can make the dimension according customer's drawing

## STANDARD SERIES PLANETARY GEAR REDUCER


### PRF SERIES



- \* Single bracket structure, Good cost - performance
- \* Stable running, low noisy
- \* Precision 8-16 arcmin.
- \* Suit for most of applications

Dimension Size : 60-120  
 Gear Ratio Range : 3-100  
 Accuracy Range : 8-6 arcmin

### PRF SERIES

PM	90	L1	5	P1	
Series	Specification	Stage	Gear Ratio	Backlash	Output Type
	60,90,120,	L1=1 L2=2	L1:3,4,5,6,7,8,9,10 L2:15,20,35,40,50, 80,100	P1= Standard P2=High Precision	S1= Empty Shaft None= With key

Can make the dimension according customer's drawing


### PRL SERIES



- \* Outlet using screw connection, mounting dimension is standard.
- \* Single bracket structure, Good cost - performance
- \* Stable running, low noisy
- \* Precision 8-16 arcmin. Suit for most of application

Dimension Size : 60-120  
 Gear Ratio Range : 3-100  
 Accuracy Range : 8-6 arcmin

### PRL SERIES

PM	90	L1	5	P1	
Series	Specification	Stage	Gear Ratio	Backlash	Output Type
	60,90,120,	L1=1 L2=2	L1:3,4,5,6,7,8,9,10 L2:15,20,35,40,50, 80,100	P1= Standard P2=High Precision	S1= Empty Shaft None= With key

Can make the dimension according customer's drawing

## STANDARD SERIES PLANETARY GEAR REDUCER


### PR SERIES



- \* Double brace cage type planetary structure. Reliable and suit for frequently reversing.
- \* Excellent radial force load capacity.
- \* High rigidity design , Larger Load Capacity.
- \* Backlash 5-12 arcmin , high transmission accuracy

Dimension Size : 60-180  
 Gear Ratio Range : 3-100  
 Accuracy Range : 5-8 arcmin (P3))

### PR SERIES

PM	90	L1	5	P1	
Series	Specification	Stage	Gear Ration	Backlash	Output Type
	60,90,120, 140,180,220	L1=1 L2=2	L1:3,4,5,6,7,8,9,10 L2:15,20,35,40,50, 80,100	P1= Standard P2=High Precision	S1= Empty Shaft None= With key


Can make the dimension according customer's drawing

### PT SERIES



- \* C,D Section transmission ratio 3-9
- \* 5-15 arcmin
- \* Helical transmission can transmit larger torque,low noise
- \* Integrated planetary structure,Double brace cage,high rigid
- \* Shell is die-casting forming, compact design
- \* Economic and practical

### PT SERIES

PM	90	L1	5	P1	
Series	Specification	Section	Motor Power	Backlash	Output Type
	3, 5, S9	L1=1 L2=2	400W, 750W	P1= Standard P2= High Precision	S1= Empty Shaft None= With key

Can make the dimension according customer's drawing

## STANDARD SERIES PLANETARY GEAR REDUCER

### PVF SERIES




Conner type series planetary gear reducer

- \* With bevel gear reversing mechanism, can realize 90°output
- \* Very stable and reliable performance
- \* Bevel gear after carburizing, Hardness is HRC58 ,
- \* Good wear resistance

Dimension Size : 60-120  
 Gear Ratio Range : 3-100  
 Accuracy Range : 8-16 arcmin

### PRF SERIES

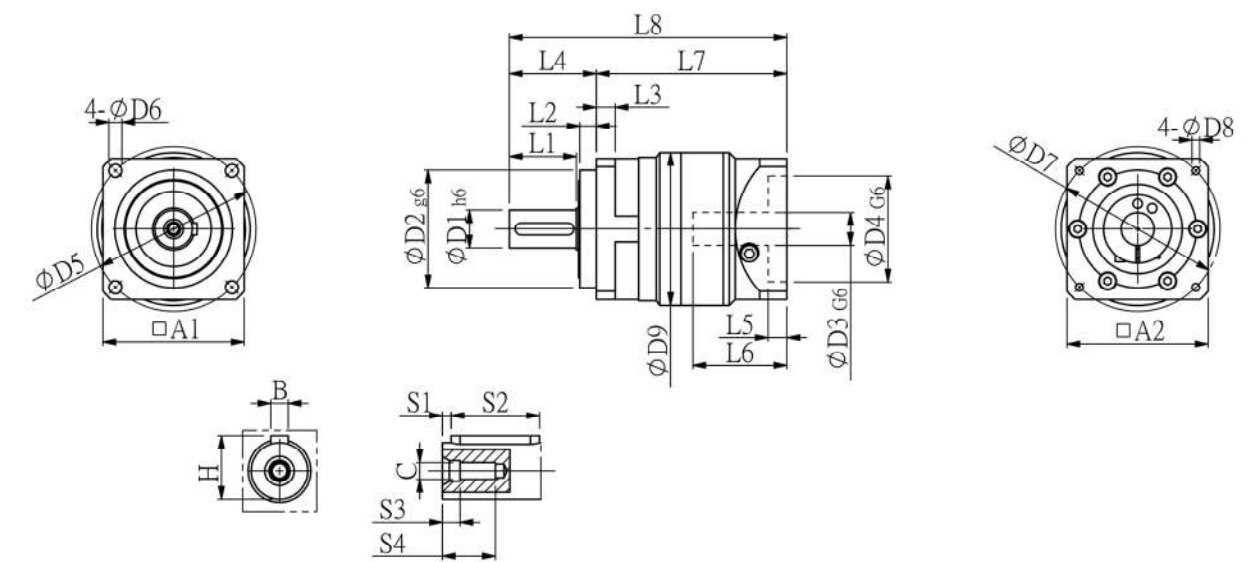
PM	90	L1	5	P1	
Series	Specification	Stage	Gear Ration	Backlash	Output Type
	60,90,120,	L1=1 L2=2	L1:3,4,5,6,7,8,9,10 L2:15,20,35,40,50, 80,100	P1= Standard P2=High Precision	S1= Empty Shaft None= With key

Can make the dimension according customer's drawing

**PM SERIES TECHNICAL PARAMETERS AND SIZES**

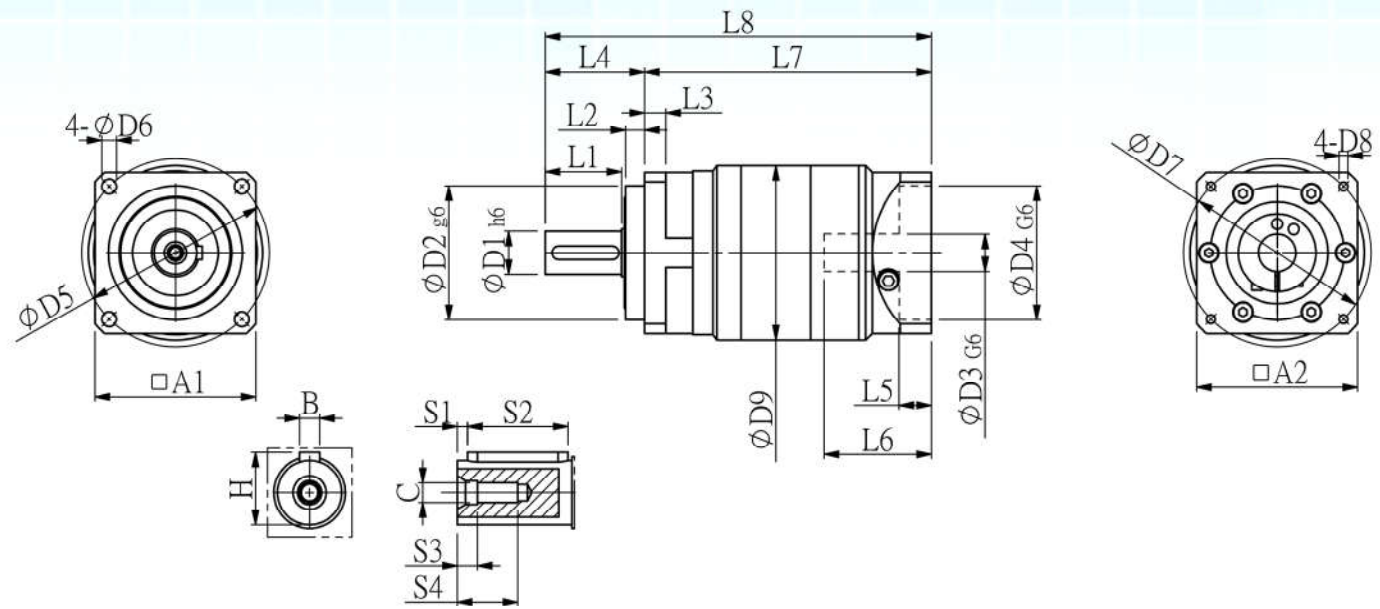
Parameter / Specification			PM60	PM90	PM120	PM140	PM180	PM220		
Max. Torque	Nm	1.5* Rated Torque								
Emerg. Braking Torque	Nm	2.5* Rated Torque								
Max. Radial Torque	N	1530	3250	6700	9400	1450	50000			
Max. Axial Torque	N	630	1300	3000	4700	7250	35000			
Torsional Stiffness	Nm/arcmin	7	14	25	50	145	225			
Max. Input Speed	rpm	8000	8000	8000	6000	6000	4000			
Rated Input Speed	rpm	5000	4000	4000	3000	3000	2000			
Noise	dB	≤58	≤60	≤65	≤68	≤68	≤70			
Aver. life	H	20000								
Full load-efficiency	%	L1≥95%, L2≥90%								
Backlash	P0	L1	arcmin	≤3	≤3	≤3	≤3	≤3	≤3	
		L2	arcmin	≤5	≤5	≤5	≤6	≤6	≤6	
	P1	L1	arcmin	≤6	≤6	≤6	≤6	≤6	≤6	
		L2	arcmin	≤10	≤10	≤10	≤10	≤10	≤10	
	Rotary Inertial	L1	3	Kg.cm <sup>2</sup>	0.16	0.61	3.25	9.21	28.98	69.61
			4	Kg.cm <sup>2</sup>	0.14	0.48	2.74	7.54	23.67	54.37
		7	Kg.cm <sup>2</sup>	0.13	0.45	2.62	7.14	22.48	50.97	
			8	Kg.cm <sup>2</sup>	0.13	0.45	2.6	7.14	22.48	50.88
		9	Kg.cm <sup>2</sup>	0.13	0.42	2.59	7.08	22.4	50.73	
			10	Kg.cm <sup>2</sup>	0.13	0.4	2.57	7.03	22.51	50.56
L2		15	Kg.cm <sup>2</sup>	0.13	0.45	0.45	2.63	7.3	22.79	
		20	Kg.cm <sup>2</sup>	0.13	0.45	0.45	2.63	7.3	22.79	
		35	Kg.cm <sup>2</sup>	0.13	0.45	0.45	2.43	7.1	22.59	
		40	Kg.cm <sup>2</sup>	0.13	0.45	0.45	2.43	6.92	21.83	
	50	Kg.cm <sup>2</sup>	0.13	0.4	0.4	2.39	6.92	21.83		
	80	Kg.cm <sup>2</sup>	0.13	0.4	0.4	2.39	6.72	21.65		
100	Kg.cm <sup>2</sup>	0.13	0.4	0.4	2.39	6.72	21.6			

Parameter / Specification		PM60	PM90	PM120	PM140	PM180	PM220
Rated	L1	3	30	50	120	280	800
		4	45	85	210	440	800
		5	45	85	210	440	1000
		6	45	85	210	440	1000
		7	45	85	210	440	1000
	L2	8	40	80	200	400	800
		9	30	60	140	300	700
		10	30	60	140	300	700
		15	30	50	120	280	800
		20	45	85	210	440	800
Protect Level	Environment Temp.	35	45	85	210	440	1000
		40	45	85	210	440	800
		50	45	85	210	440	1000
		80	40	80	200	400	800
		100	30	60	140	300	700
Protect Level		IP65					
Environment Temp.		45°C -- -15°C					

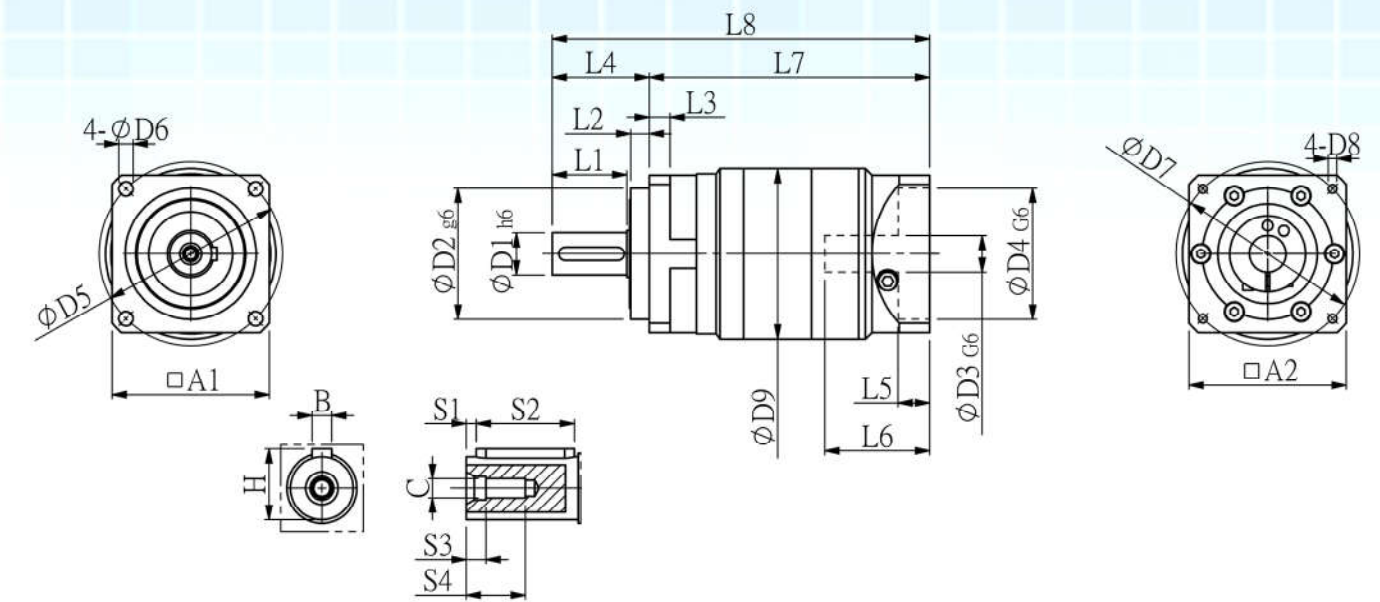


PM60-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
16	50	14	50	70	5.5	70	M4	65	28.5	7	8	37	10	37	81	118	60	60	2.5	25	5	18	5	18	M5

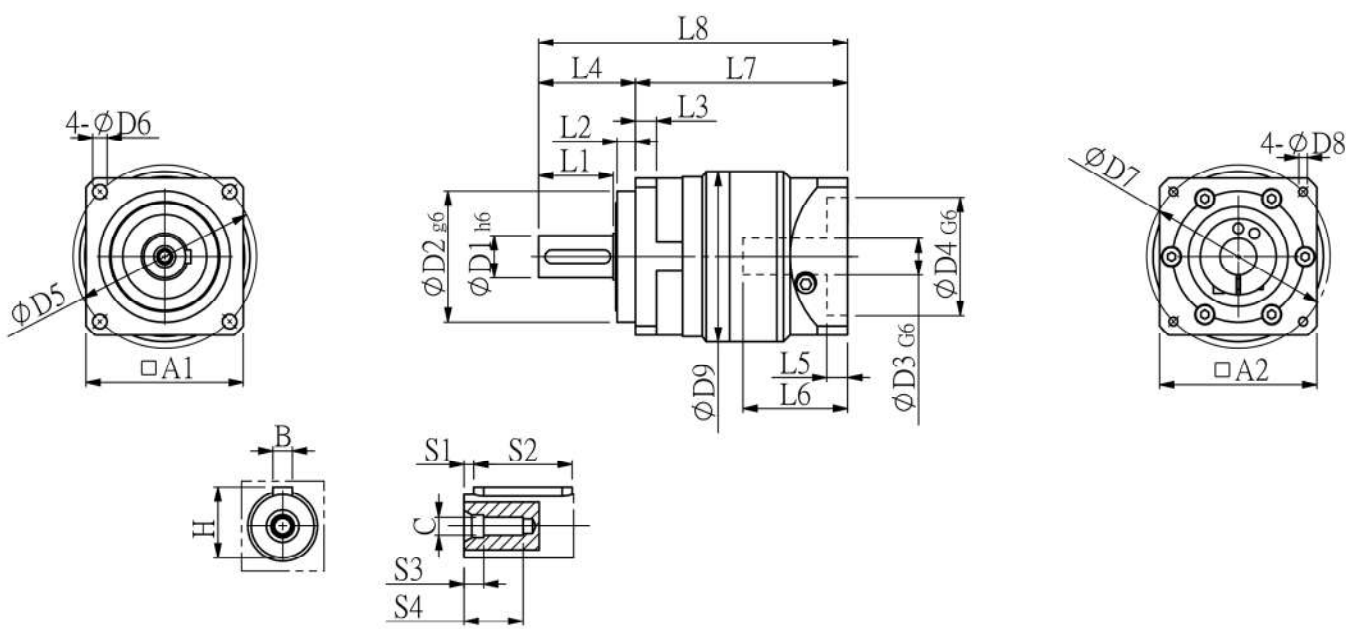
**PM SERIES TECHNICAL PARAMETERS AND SIZES**



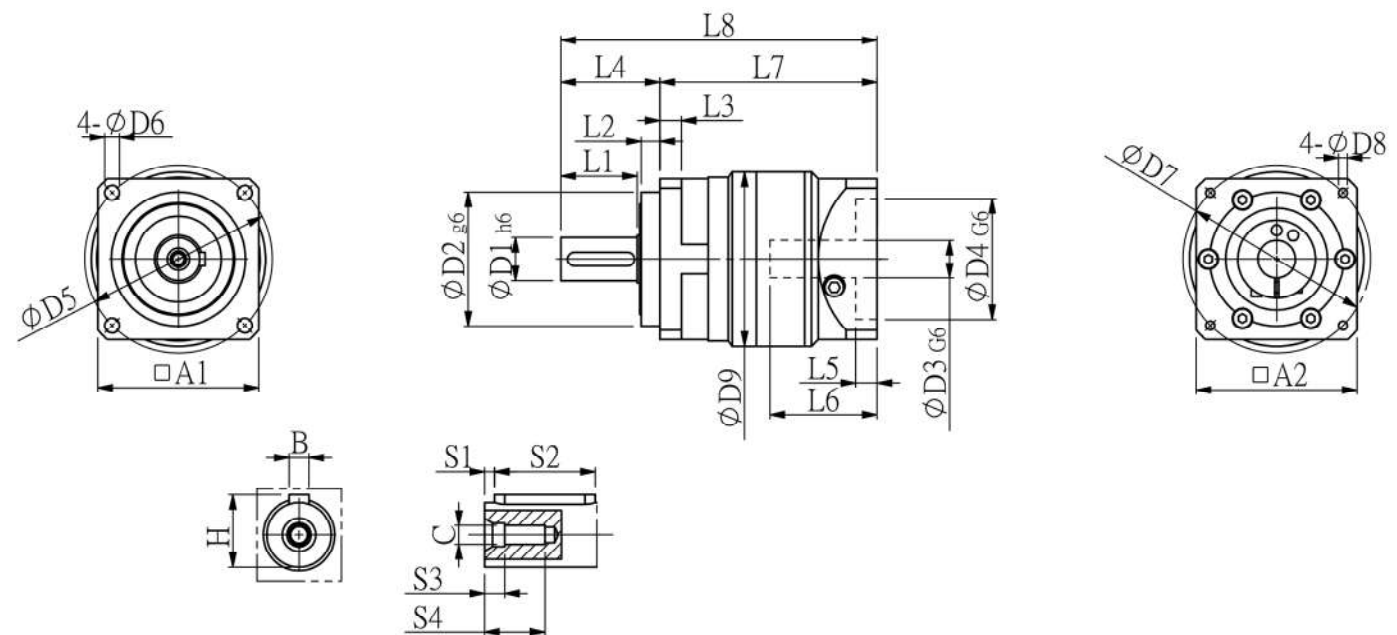
PM60-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
16	50	14	50	70	5.5	70	M4	65	28.5	7	8	37	10	37	107	144	60	60	2.5	25	5	18	5	18	M5



PM90-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
22	80	19	70	100	6.6	90	M6	91	36	9	8	48	10	44	127	175	90	100	0	32	5	20	6	24.5	M6

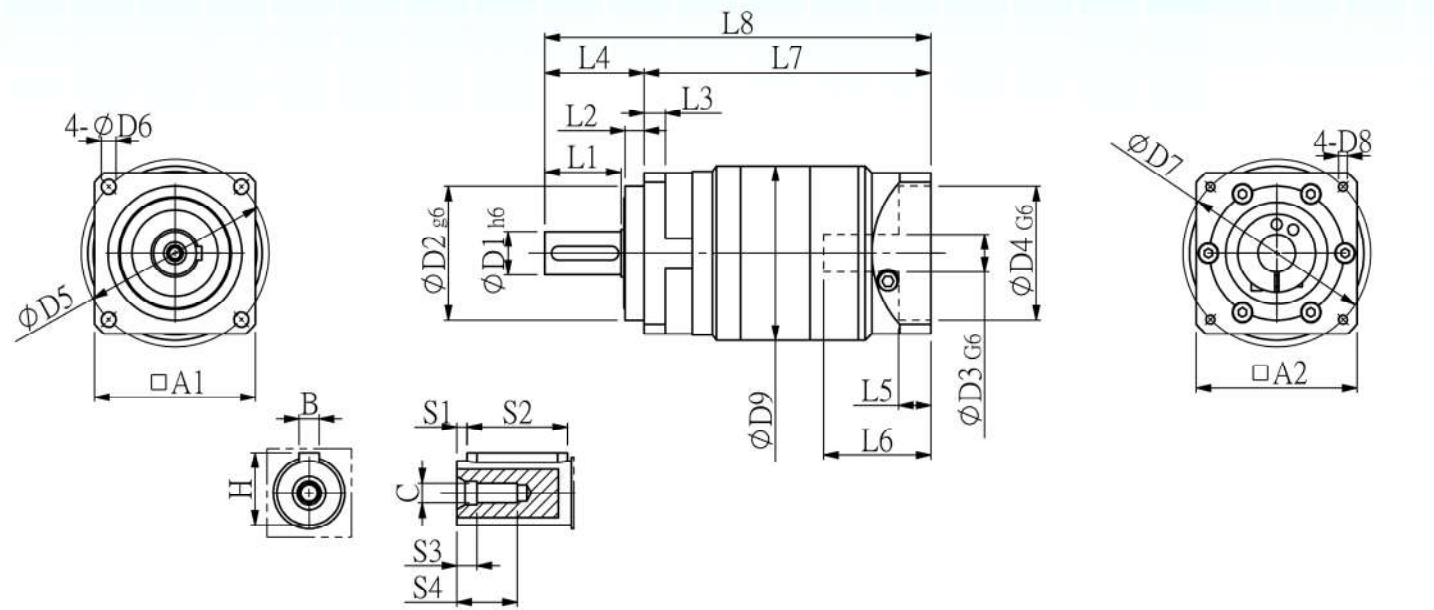


PM90-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
22	80	19	70	100	6.6	90	M6	91	36	9	8	48	10	58	112.5	160.5	90	100	0	32	5	20	6	24.5	M6

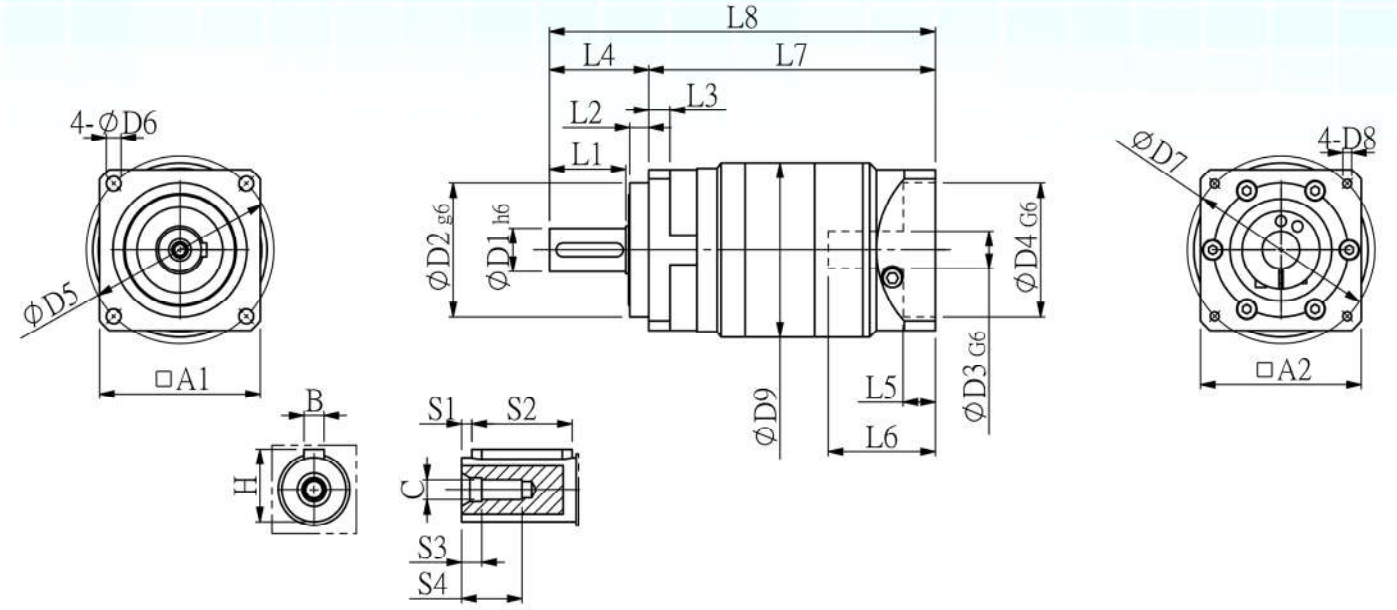


PM120-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
32	110	22	110	130	90	145	M8	122	47	12	12	65	10	71	135.5	200.5	115	130	5	40	5	15	10	35	M12

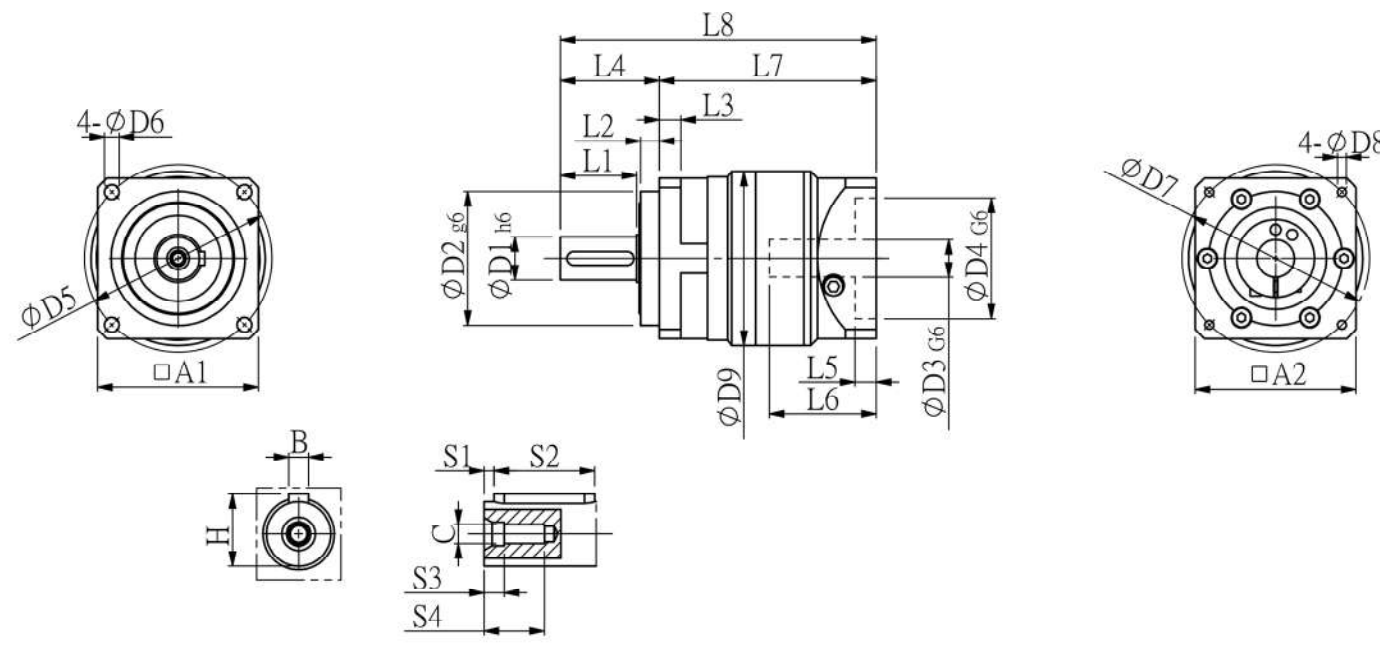
**PM SERIES TECHNICAL PARAMETERS AND SIZES**



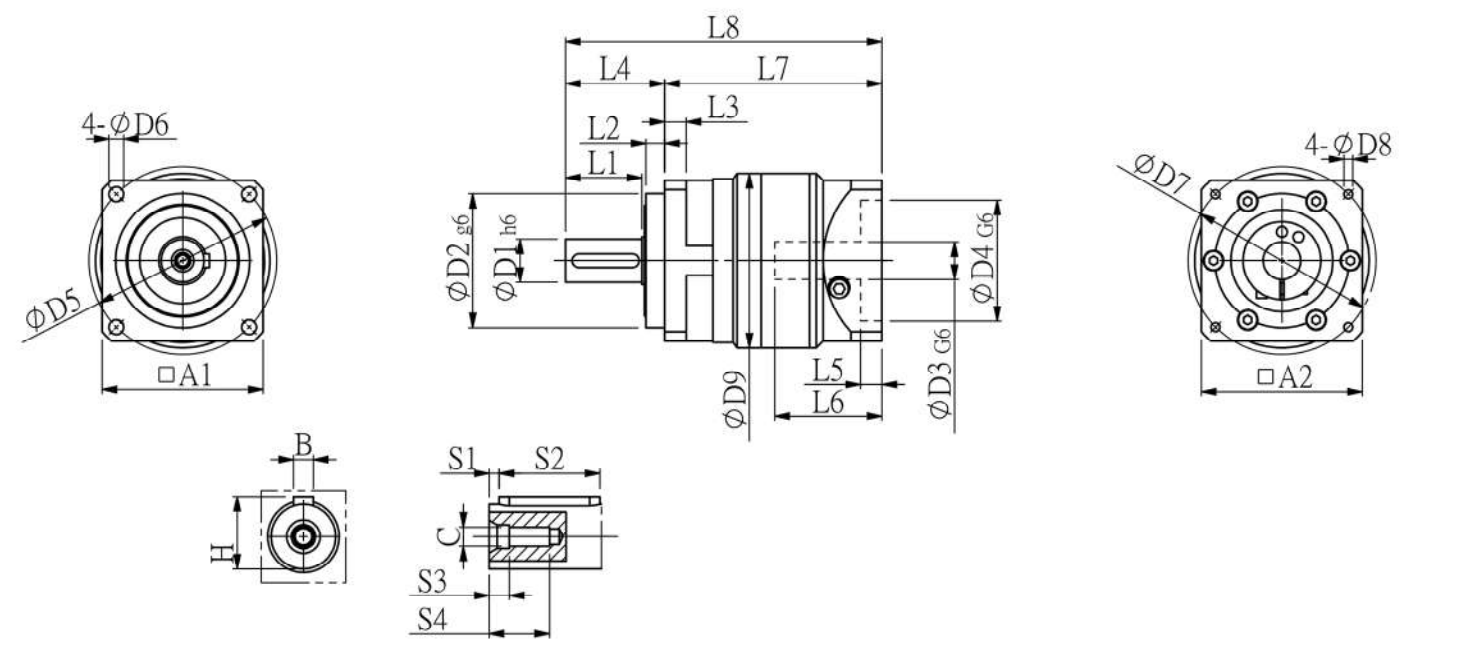
PM120-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
32	110	22	110	130	9	145	M8	12	47	12	12	65	10	57	150	215	115	130	5	40	5	15	10	35	M12



PM140-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
40	130	35	114.3	165	11	200	M12	150	82	12	12	97	8	85	217	314	140	176	5	65	10	36	12	43	M16

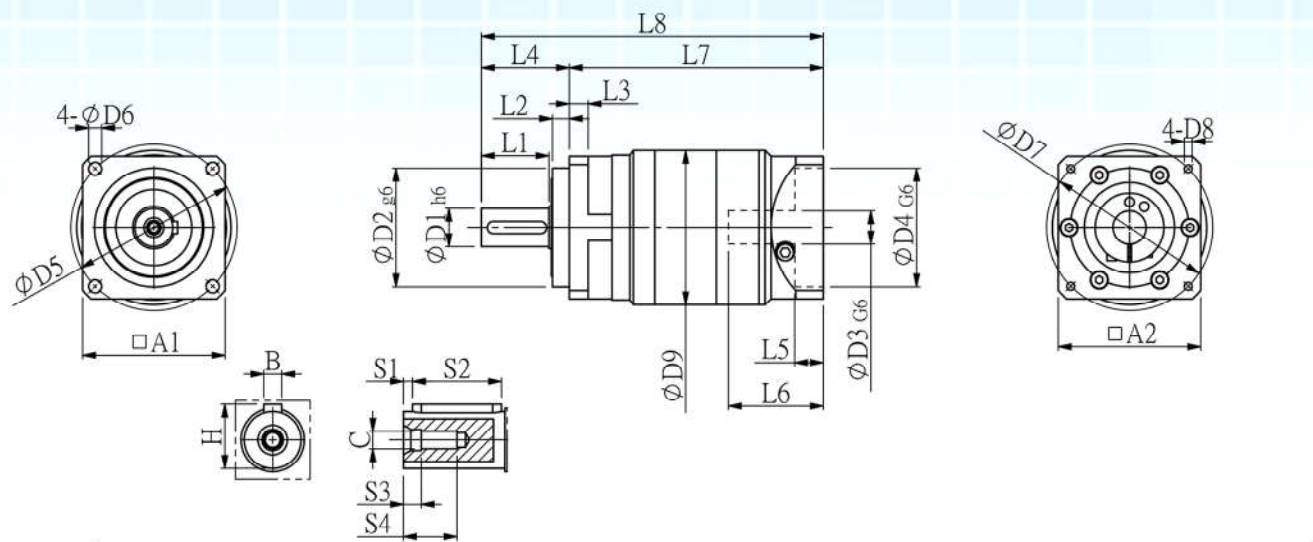


PM140-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
40	130	35	114.3	165	11	200	M12	150	82	12	12	97	8	81	162	259	140	176	5	65	10	36	12	43	M16



PM180-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
55	160	35	114.3	215	13.5	200	M12	200	82	20	15	105	10	83	176.5	281.5	179	180	6	70	10	42	16	59	M20

**PM SERIES TECHNICAL PARAMETERS AND SIZES**



PM180-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	A1	A2	S1	S2	S3	S4	B	H	C
55	160	35	114.3	215	13.5	200	M12	200	82	20	15	105	10	83	228.5	333.5	179	180	6	70	10	42	16	59	M20

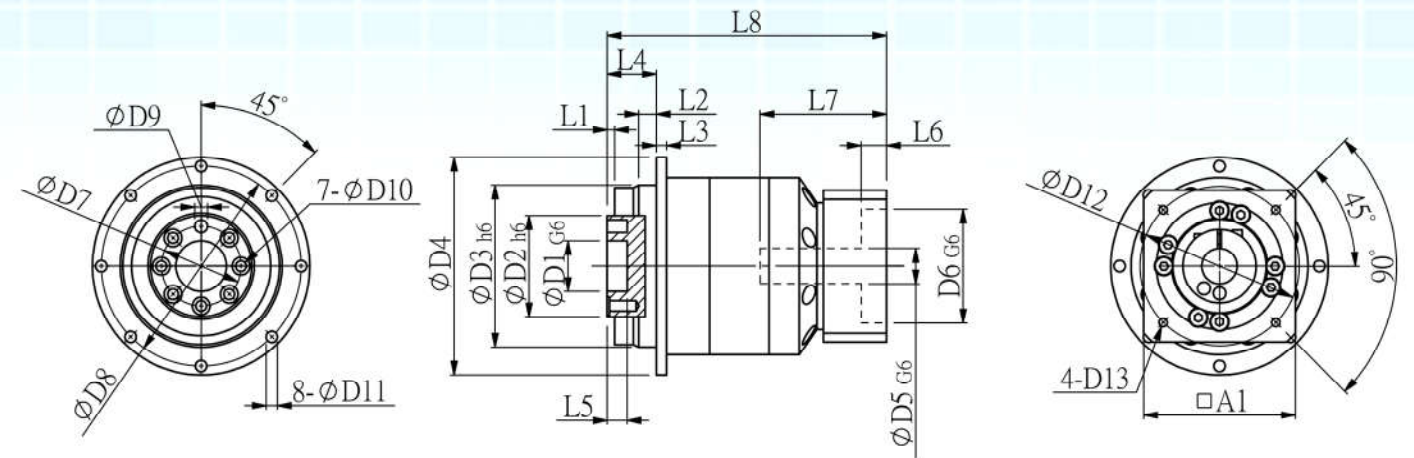
**PG SERIES TECHNICAL PARAMETERS AND SIZES**

Parameter / Specification		PG64	PG90	PR110	PR140	PR220		
Max. Torque	Nm	1.5* Rated Torque						
Emerg. Braking Torque	Nm	2* Rated Torque						
Max. Radial Torque	N	680	1700	3100	5650	6200		
Max. Axial Torque	N	340	875	1250	2275	3100		
Torsional Stiffness	Nm/arcmin	13	31	82	151	450		
Max. Input Speed	rpm	6000	6000	4500-6000	4000-5000	3000-4000		
Rated Input Speed	rpm	3300-5500	2600-4500	2300-4200	2000-3900	2000-3000		
Noise	dB							
Aver. life	H	20000						
Full load-efficiency	%	L1≥95%, L2≥90%						
Backlash	P0	L1	arcmin	≤3	≤3	≤3	≤3	≤3
		L2	arcmin	≤5	≤5	≤5	≤5	≤5
	P1	L1	arcmin	≤5	≤5	≤5	≤5	≤5
		L2	arcmin	≤8	≤8	≤8	≤8	≤8
Rotary Interia	L1	14	Kg.cm <sup>2</sup>	0.13	0.51	2.87	7.54	23.4
		5	Kg.cm <sup>2</sup>	0.13	0.47	2.71	7.42	23.4
		7	Kg.cm <sup>2</sup>	0.13	0.45	2.62	7.14	23.4
		10	Kg.cm <sup>2</sup>	0.03	0.44	2.57	7.03	21.8
		20	Kg.cm <sup>2</sup>	0.03	0.23	0.47	2.71	21.8
	L2	25	Kg.cm <sup>2</sup>	0.03	0.23	0.47	2.71	21.8
		35	Kg.cm <sup>2</sup>	0.03	0.23	0.47	2.71	21.8
		40	Kg.cm <sup>2</sup>	0.03	0.23	0.47	2.71	21.8
		50	Kg.cm <sup>2</sup>	0.03	0.2	0.44	2.57	21.8
		70	Kg.cm <sup>2</sup>	0.03	0.2	0.44	2.57	21.8
100	Kg.cm <sup>2</sup>	0.03	0.2	0.44	2.57	21.8		

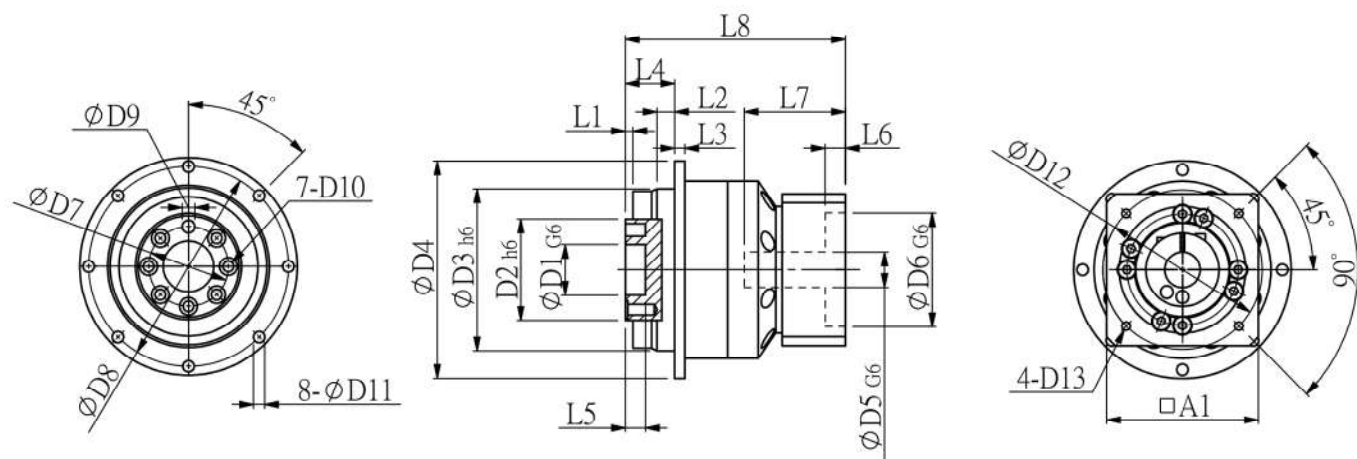


**PG SERIES TECHNICAL PARAMETERS AND SIZES**

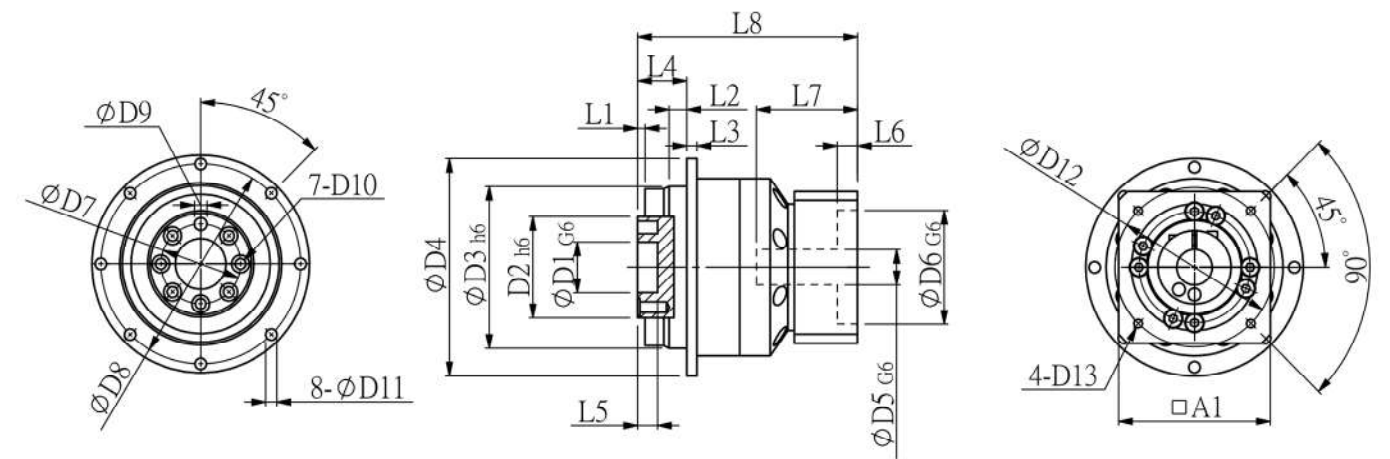
Parameter / Specification			PG64	PG90	PG10	PG140	PG200
Rated Torque (Nm)	Stage	Ratio					
	L1	4	28	75	170	370	1020
		5	28	75	170	370	1020
		7	28	75	120	370	880
		10	18	60	120	240	685
	L2	20	40	90	210	400	1020
		25	40	90	200	400	1020
		35	40	90	210	400	1020
		40	40	90	210	400	1020
		50	40	90	220	400	1020
	70	40	90	200	400	880	
	100	18	60	120	240	685	
Protect Level	IP65						
Environment Temp.	45°C -- -15°C						



D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	L1	L2	L3	L4	L5	L6	L7	L8	A1
20	40	64	86	14	50	31.5	79	5	M5	4.5	70	M4	3	7	4	19.5	8	10	38	110.5	60

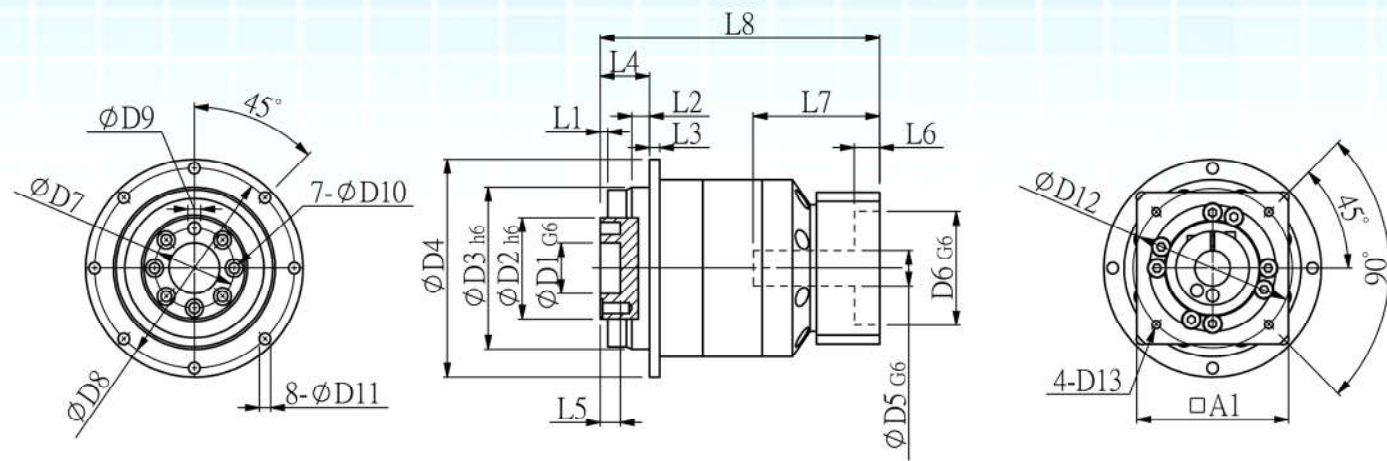


D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	L1	L2	L3	L4	L5	L6	L7	L8	A1
20	40	64	86	14	50	31.5	79	5	M5	4.5	70	M4	3	7	4	19.5	8	10	38	87	60

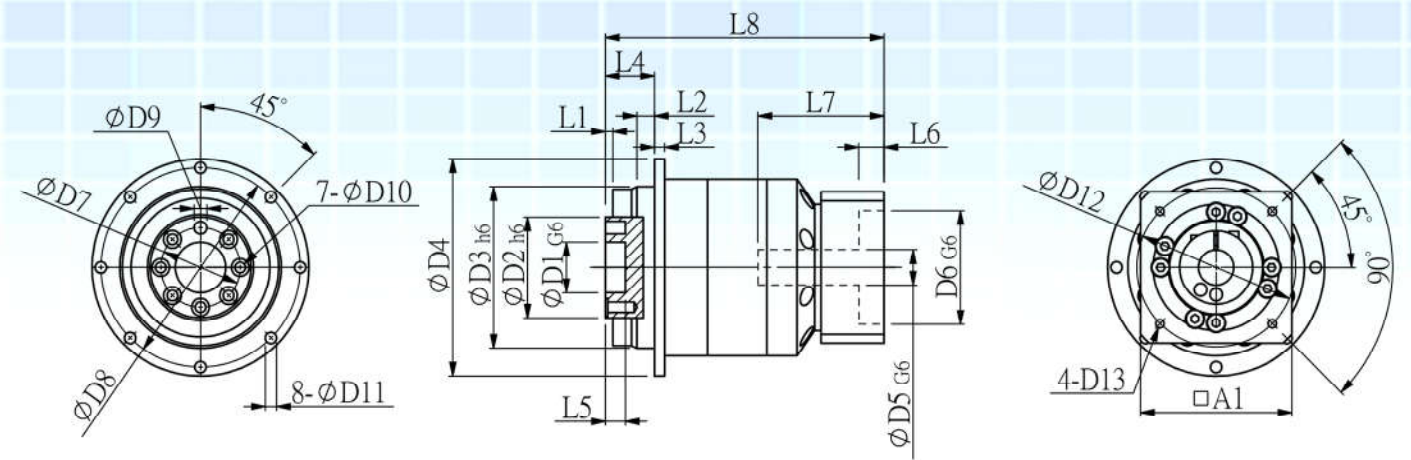


D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	L1	L2	L3	L4	L5	L6	L7	L8	A1
31.5	63	90	118	19	70	50	109	6	M6	5.5	90	M5	6	10	7	30	12	6	43	105.5	100

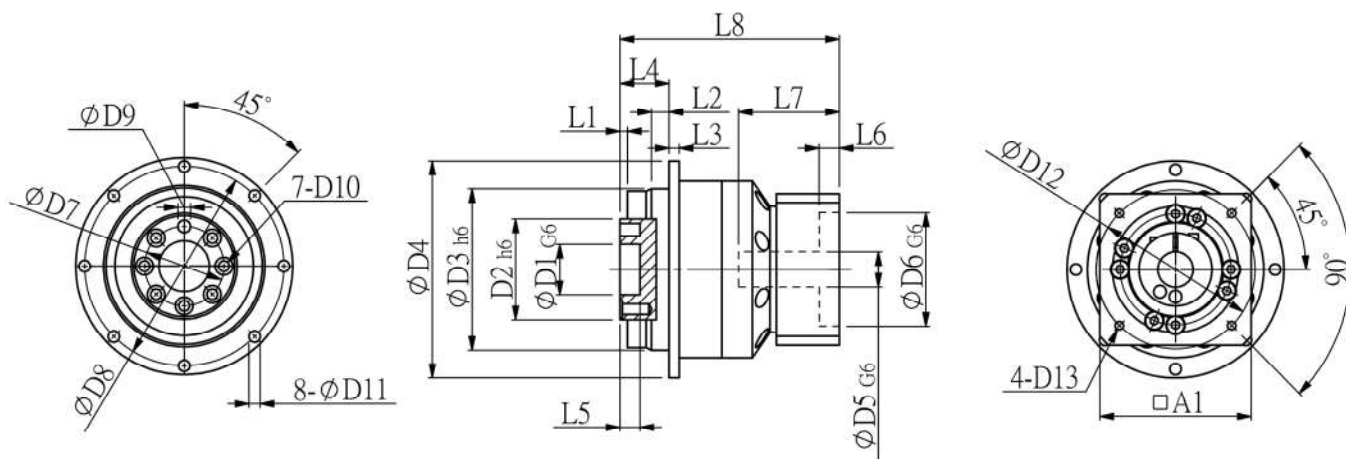
**PG SERIES TECHNICAL PARAMETERS AND SIZES**



PG90-L2																					
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	L1	L2	L3	L4	L5	L6	L7	L8	A1
31.5	63	90	118	19	70	50	109	6	M6	5.5	90	M5	6	10	7	30	12	6	43	135	100



PG110-L2																					
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	L1	L2	L3	L4	L5	L6	L7	L8	A1
40	80	110	145	22	110	63	135	6	M6	5.5	145	M8	6	10	8	29	13	10	62	176	130



PG110-L1																					
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	L1	L2	L3	L4	L5	L6	L7	L8	A1
40	80	110	145	22	110	163	135	6	M6	5.5	145	M8	6	10	8	29	13	10	62	142	130

## PVF SERIES AANGLE REDUCER

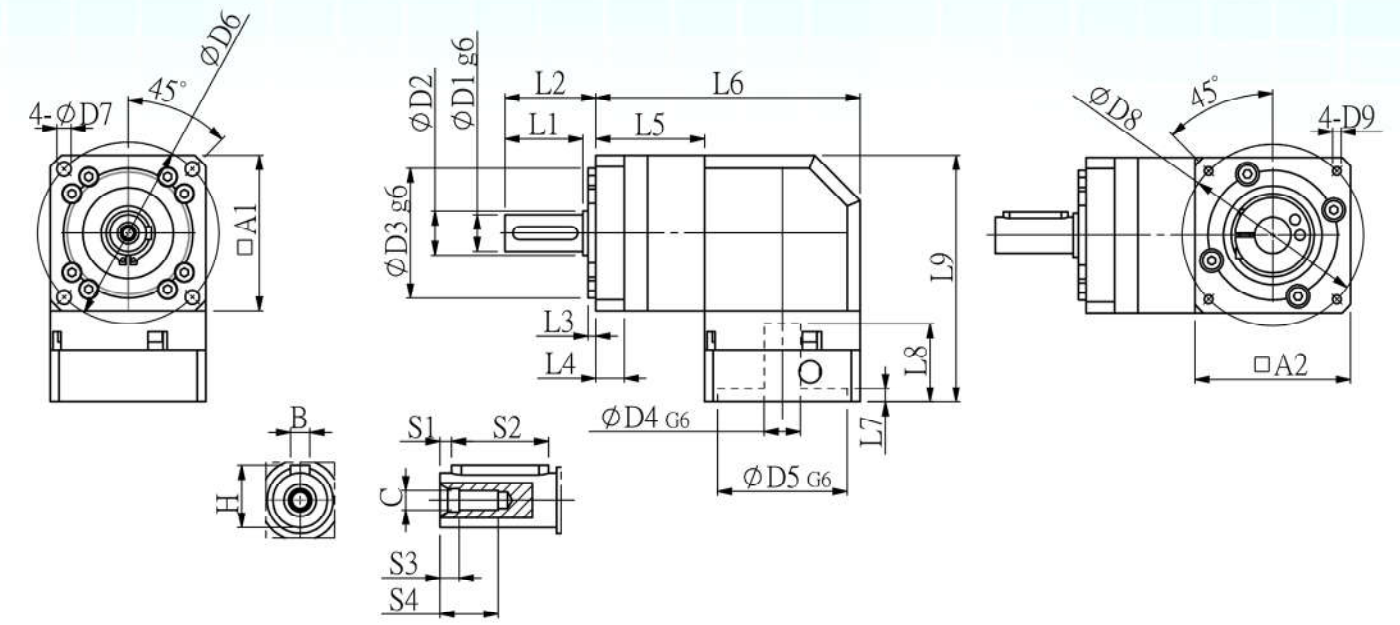
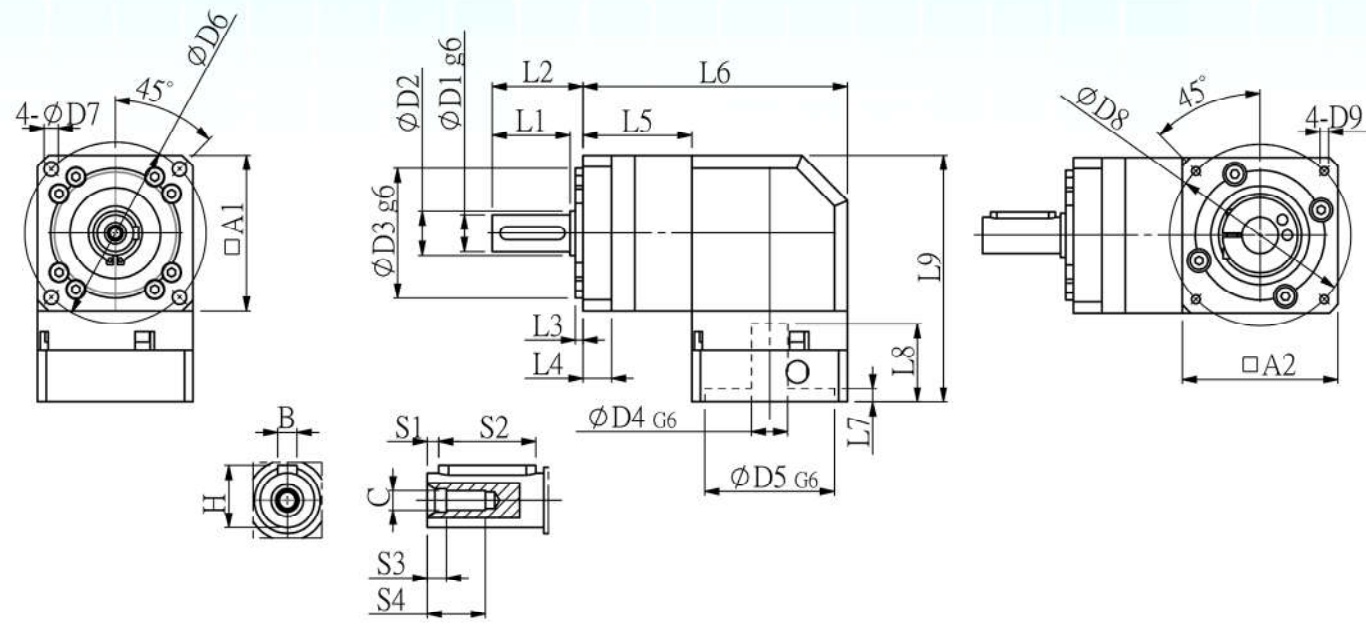
Parameter / Specification		PVF60	PVF90	PVF120		
Max. Torque	Nm	1.5* Rated Torque				
Emerg. Braking Torque	Nm	2* Rated Torque				
Max. Radial Torque	N	240	450	1240		
Max. Axial Torque	N	220	430	1000		
Torsional Stiffness	Nm/arcmin	1.8	4.85	11		
Max. Input Speed	rpm	8000	6000	6000		
Rated Input Speed	rpm	4000	3500	3500		
Noise	dB	<58	<60	<65		
Aver. life	H	20000				
Full load-efficiency	%	L1≥95%, L2≥92%				
Backlash	P0	L1	arcmin	≤8	≤8	≤8
		L2	arcmin	≤12	≤12	≤12
	P1	L1	arcmin	≤16	≤16	≤16
		L2	arcmin	≤20	≤20	≤20
Rotary Inertia	L1	3	Kg.cm <sup>2</sup>	0.46	1.73	12.78
		4	Kg.cm <sup>2</sup>	0.46	1.73	12.78
		5	Kg.cm <sup>2</sup>	0.46	1.73	12.78
		7	Kg.cm <sup>2</sup>	0.41	1.42	11.38
		10	Kg.cm <sup>2</sup>	0.41	1.42	11.38
	L2	12	Kg.cm <sup>2</sup>	0.44	1.49	12.18
		15	Kg.cm <sup>2</sup>	0.44	1.49	12.18
		20	Kg.cm <sup>2</sup>	0.44	1.49	12.18
		25	Kg.cm <sup>2</sup>	0.44	1.49	12.18
		28	Kg.cm <sup>2</sup>	0.44	1.49	12.18
		40	Kg.cm <sup>2</sup>	0.44	1.49	12.18
		50	Kg.cm <sup>2</sup>	0.34	1.25	11.48
		100	Kg.cm <sup>2</sup>	0.34	1.25	11.48

## PVF SERIES AANGLE REDUCER

Parameter / Specification		PVF60	PVF90	PVF120		
Rated Torque (Nm)	L1	3	27	96	161	
		4	40	122	210	
		5	40	122	210	
		7	34	95	170	
		10	16	56	86	
	L2	9	27	96	161	
		12	27	96	161	
		15	27	96	161	
		16	40	122	210	
		20	40	122	210	
		25	40	122	210	
		28	40	122	210	
		30	27	96	161	
		35	40	122	210	
		40	40	122	210	
		50	40	122	210	
		70	34	95	170	
		100	16	56	86	
		Weight	L1	1.7	4.4	12.0
			L2	1.9	5.0	14.0

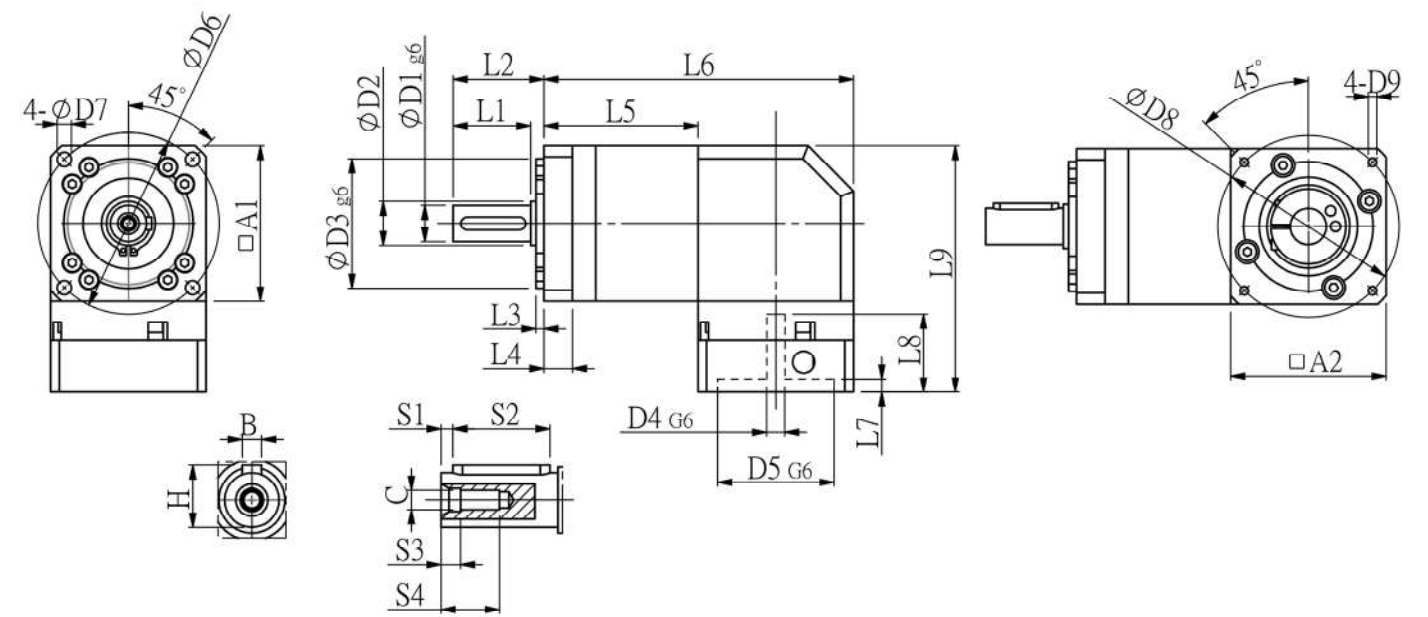
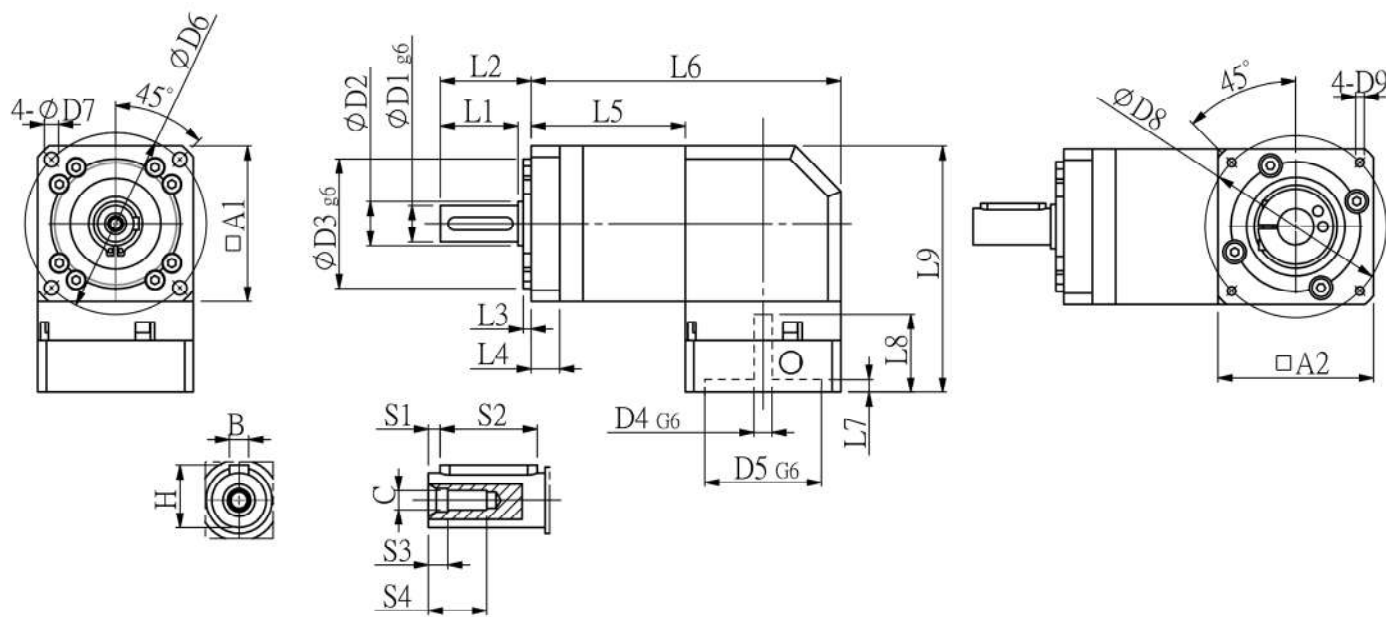
PVF SERIES AANGLE REDUCER

PVF SERIES AANGLE REDUCER



PVF60-L1																										
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	L9	A1	A2	S1	S2	S3	S4	B	H	C
14	17	50	14	50	70	5.5	70	M4	30	35	3	11	42	102	4	40	95	60	60	3	20	6	18	5	16	M5

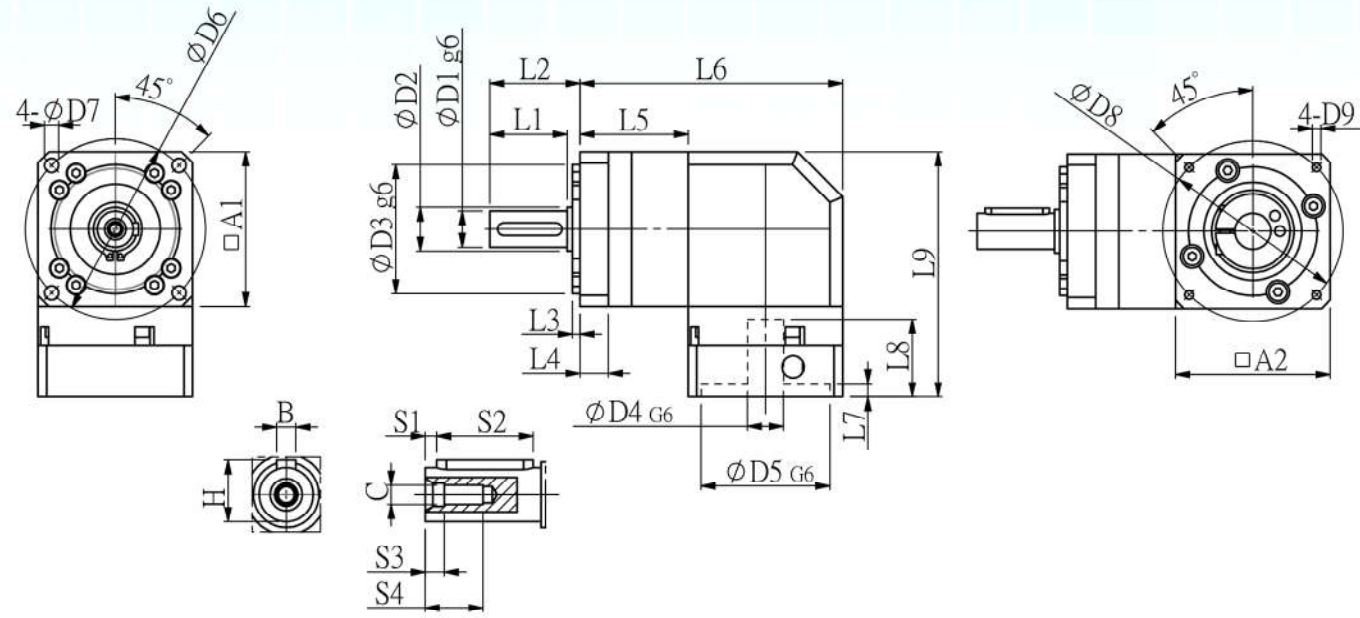
PVF90-L1																										
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	L9	A1	A2	S1	S2	S3	S4	B	H	C
20	25	80	19	70	100	6.5	90	M5	36	40.5	3	10	62	152	5	51	129.5	90	90	3	25	7	18	6	22.5	M5



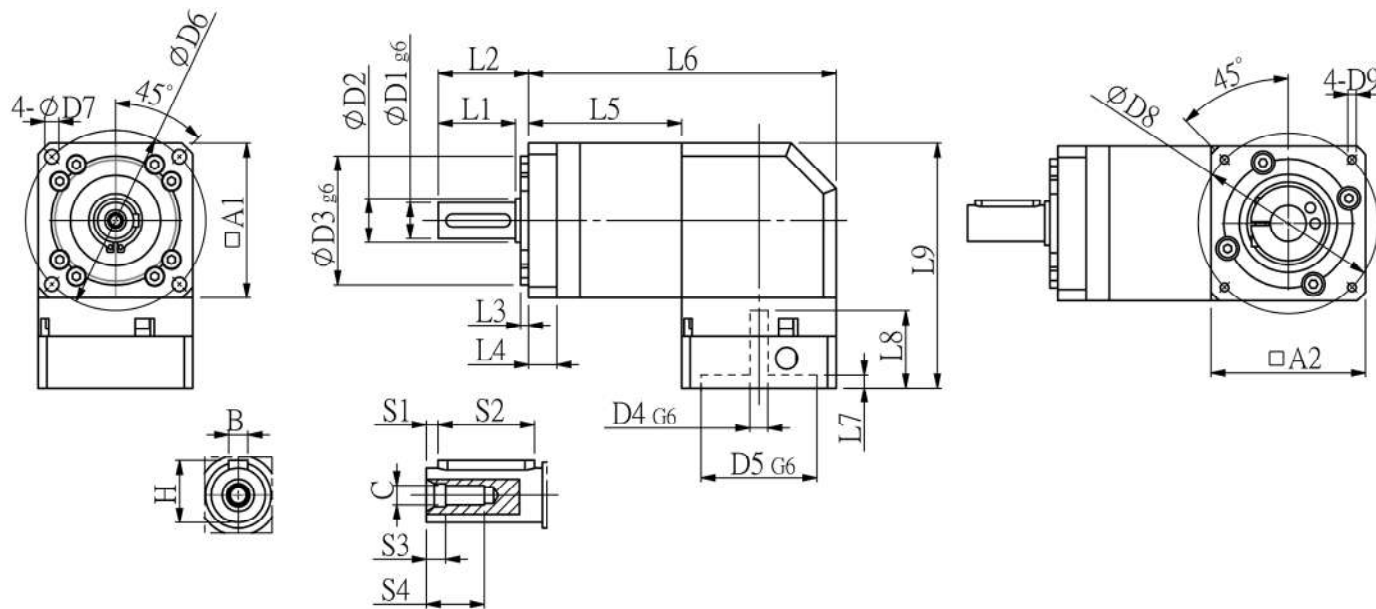
PVF60-L2																										
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	L9	A1	A2	S1	S2	S3	S4	B	H	C
14	17	50	14	50	70	5.5	70	M4	30	35	3	11	59.5	119.5	4	40	95	60	60	3	20	6	18	5	16	M5

PVF90-L2																										
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	L9	A1	A2	S1	S2	S3	S4	B	H	C
20	25	80	19	70	100	6.5	90	M5	36	40.5	3	10	84.5	174.5	5	51	129.5	90	90	3	25	7	18	6	22.5	M5

**PVF SERIES ANGLE REDUCER**



PVF120-L1																										
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	L9	A1	A2	S1	S2	S3	S4	B	H	C
25	35	110	24	110	130	8.5	145	M8	50	55	4	18	75.5	195.5	7	64	171.5	120	120	5	40	8	25	8	28	M10



PVF120-L1																										
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	L8	L9	A1	A2	S1	S2	S3	S4	B	H	C
25	35	110	24	110	130	8.5	145	M8	50	55	4	18	105	225	7	64	171.5	120	120	5	40	8	25	8	28	M10

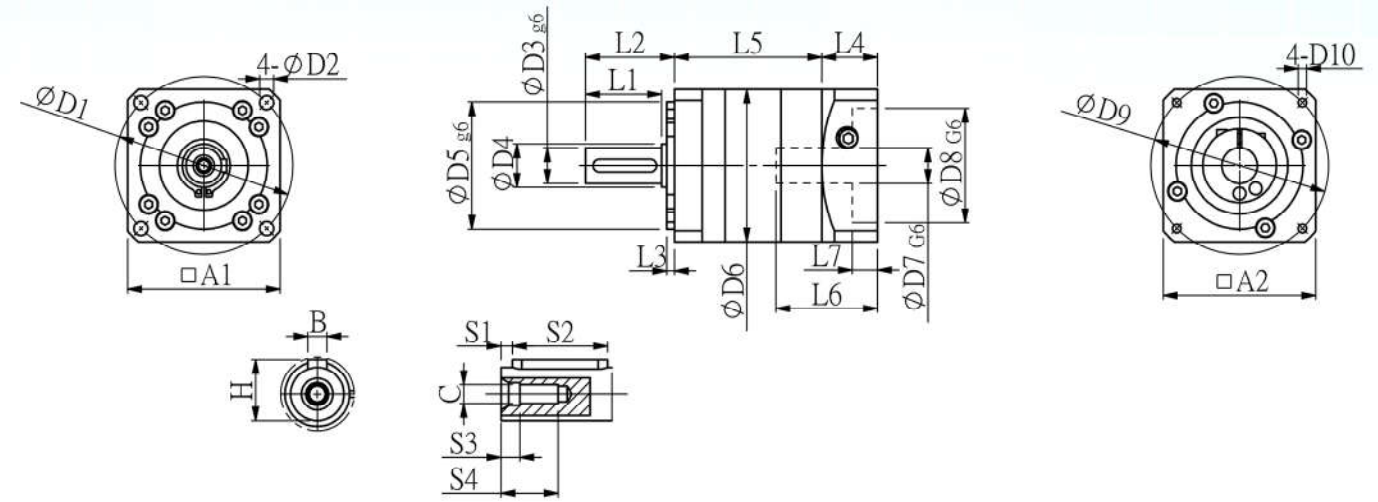
**PRF SERIES TECHNICAL PARAMETERS AND SIZES**

Parameter / Specification		PRF60	PRF80	PRF90	PRF120	PRF142		
Max. Torque	Nm	1.5* Rated Torque						
Emerg. Braking Torque	Nm	2* Rated Torque						
Max. Radial Torque	N	240	400	450	1240	2250		
Max. Axial Torque	N	220	420	430	1000	1500		
Torsional Stiffness	Nm/arcmin	1.8	4.7	4.85	11	22		
Max. Input Speed	rpm	8000	6000	6000	6000	4500		
Rated Input Speed	rpm	4000	3500	3500	3500	3000		
Noise	dB	≤58	≤60	≤60	≤65	≤68		
Aver. life	H	20000						
Full load-efficiency	%	L1≥96%, L2≥94%						
Backlash	P0	L1	arcmin	≤3	≤3	≤3	≤3	≤3
		L2	arcmin	≤5	≤5	≤5	≤6	≤6
	P1	L1	arcmin	≤6	≤6	≤6	≤8	≤8
		L2	arcmin	≤10	≤10	≤10	≤10	≤10
Rotary	L1	3	Kg.cm <sup>2</sup>	0.46	0.77	1.73	12.78	21.4
		4	Kg.cm <sup>2</sup>	0.46	0.77	1.73	12.78	21.4
Interial		5	Kg.cm <sup>2</sup>	0.46	0.77	1.73	12.78	21.4
		7	Kg.cm <sup>2</sup>	0.41	0.65	1.42	11.38	17.6
		10	Kg.cm <sup>2</sup>	0.41	0.65	1.42	11.38	17.6
	L2	12	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		15	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		20	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		25	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		28	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		40	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		50	Kg.cm <sup>2</sup>	0.34	0.58	1.25	11.48	15.7
	100	Kg.cm <sup>2</sup>	0.34	0.58	1.25	11.48	15.7	

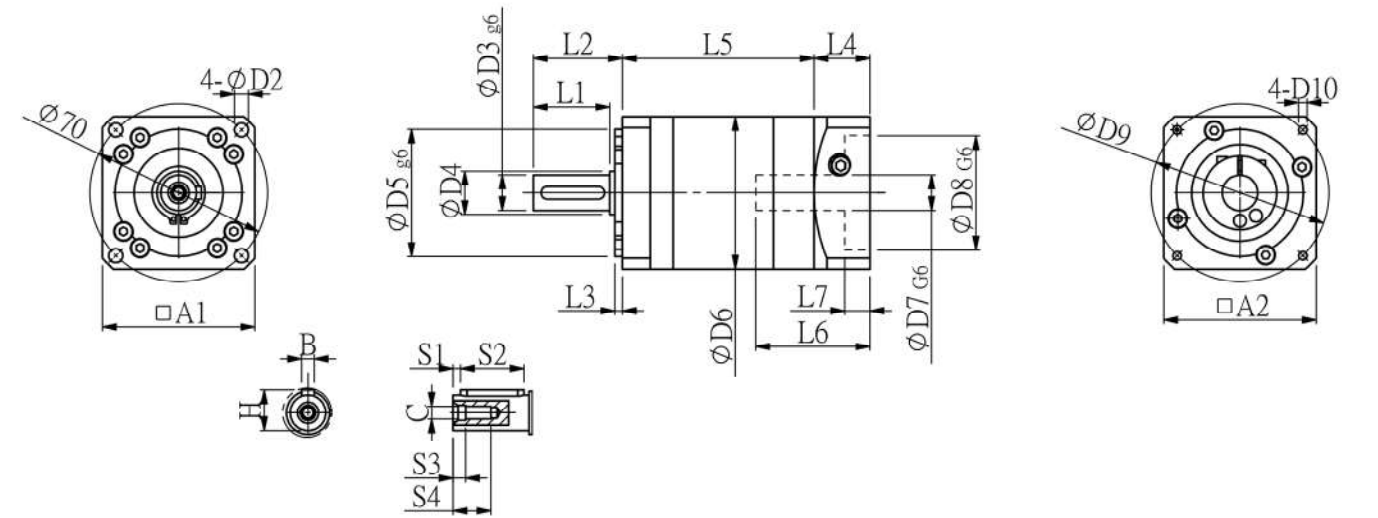
**PRF SERIES TECHNICAL PARAMETERS AND SIZES**

**PRF SERIES TECHNICAL PARAMETERS AND SIZES**

Parameter / Specification			PRF60	PRF80	PRF90	PRF120	PRF142	
Rated Torque (Nm)	L1	3	27	50	96	161	392	
		4	40	90	122	210	520	
		5	40	90	122	210	520	
		7	34	48	95	170	395	
		10	16	22	56	86	265	
		L2	9	27	50	96	161	392
			12	27	50	96	161	392
			15	27	50	96	161	392
			16	40	90	122	210	520
	20		40	90	122	210	520	
	25		40	90	122	210	520	
	28		40	90	122	210	392	
	30		27	50	96	161	392	
	35		40	90	122	210	520	
	Weight (Kg)	L1	100	16	22	56	86	265
			L1	1.7		4.4	12	26.5
			L2	1.9		5	14	29.6



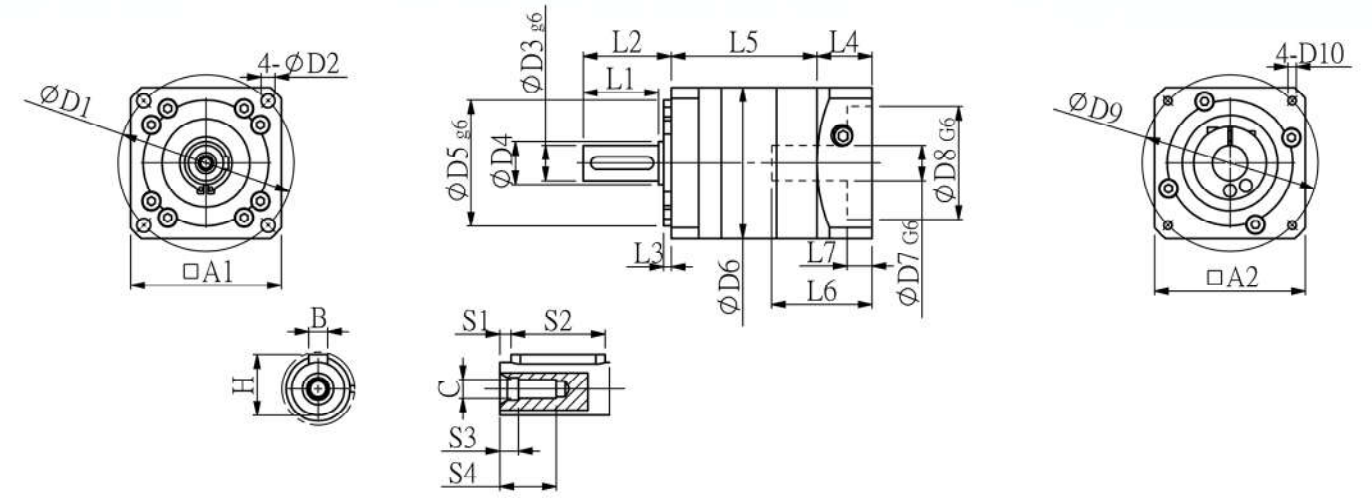
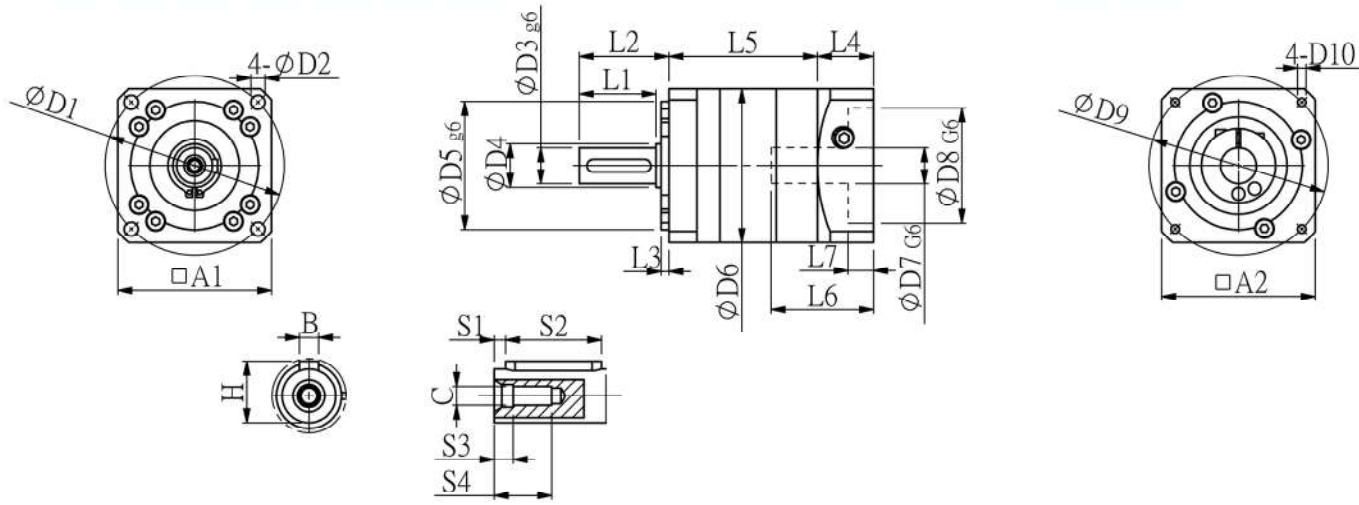
PRF60-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
70	5.5	14	17	50	60	14	50	70	M4	30	35	3	22	58	32	4	60	60	3	20	5	18	5	16	M5



PRF60-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
70	5.5	14	17	50	60	14	50	70	M4	30	35	3	22	75.5	32	4	60	60	3	20	5	18	5	16	M5

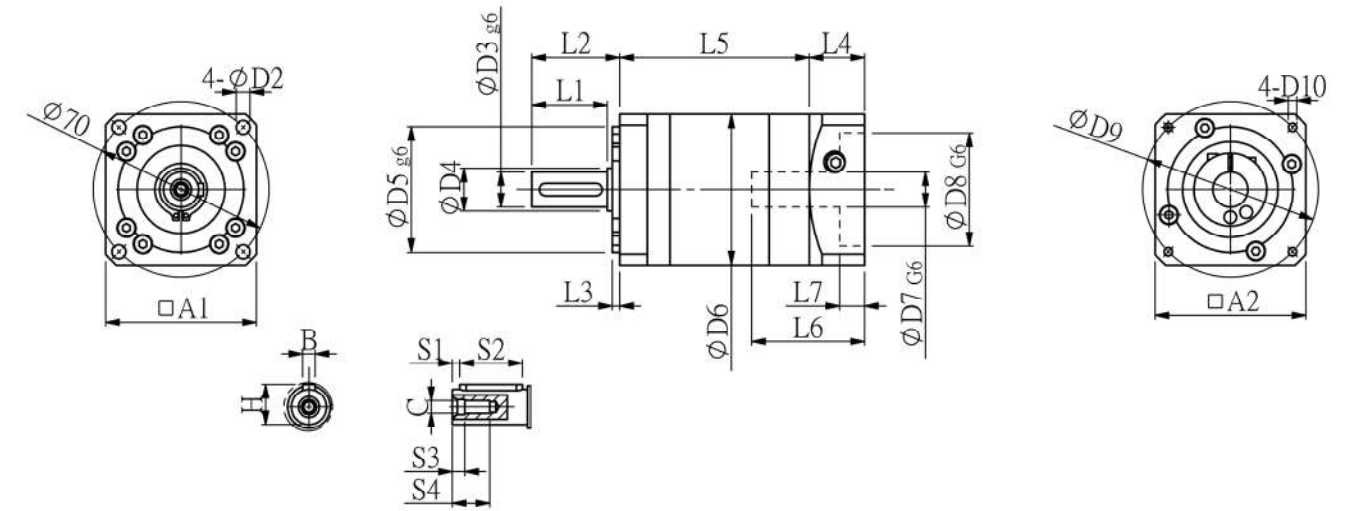
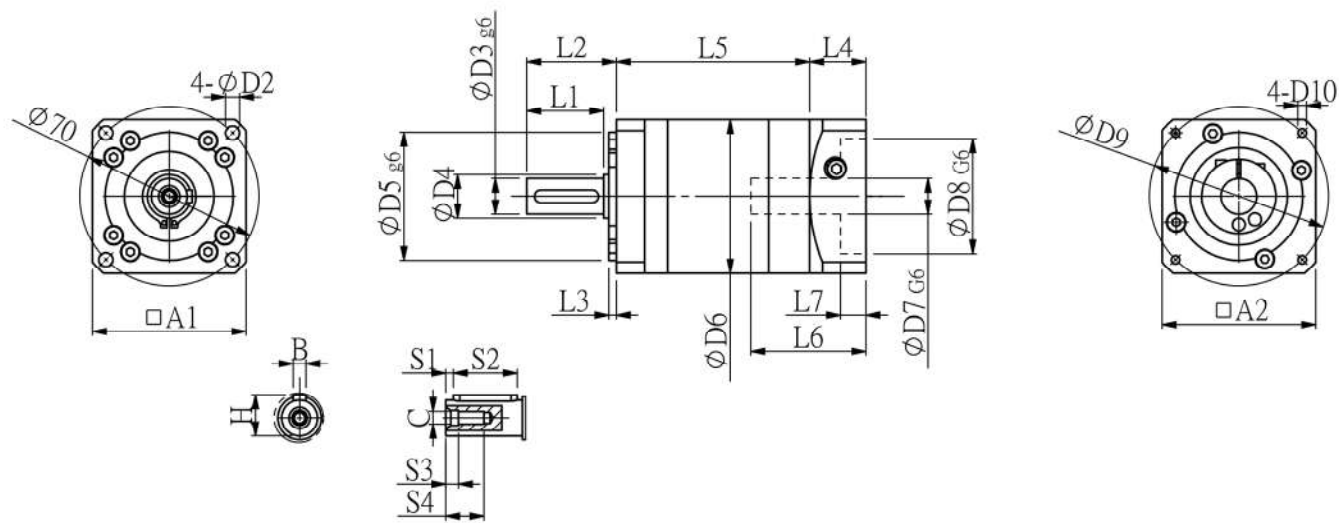
**PRF SERIES TECHNICAL PARAMETERS AND SIZES**

**PRF SERIES TECHNICAL PARAMETERS AND SIZES**



PRF80-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
90	6.5	20	25	60	80	19	70	90	M5	36	40.5	3	38	64.5	42	5	80	80	4	25	5	18	6	22.5	M5

PRF90-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
100	6.5	20	25	80	90	19	70	90	M5	36	40.5	3	32	82	47	6	90	90	3	25	6	18	6	22.5	M5

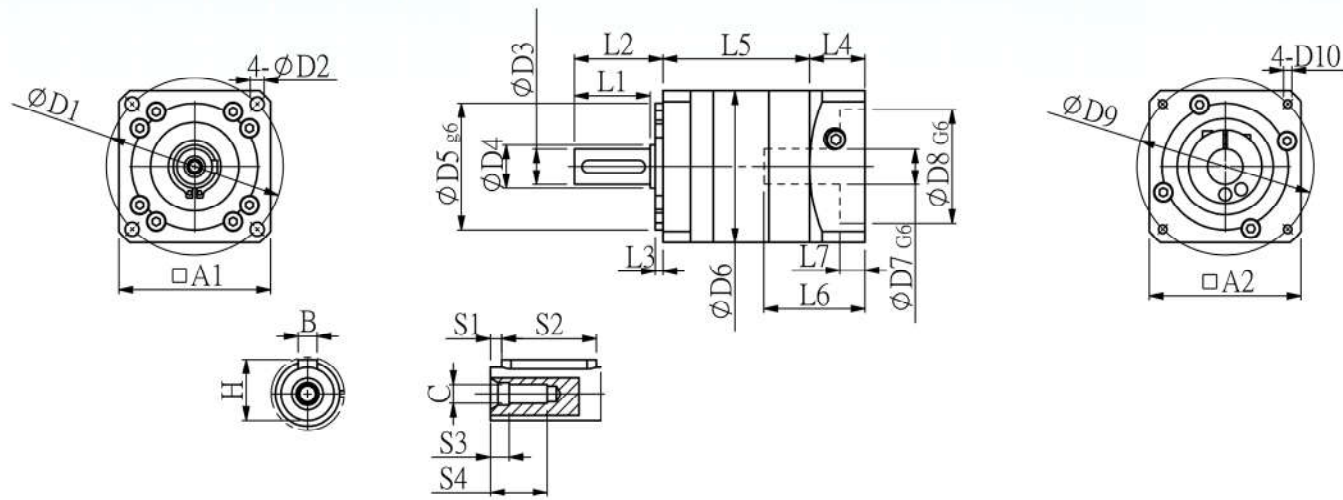


PRF80-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
90	6.5	20	25	60	80	19	70	90	M5	36	40.5	3	38	86.5	42	5	80	80	4	25	5	18	6	22.5	M5

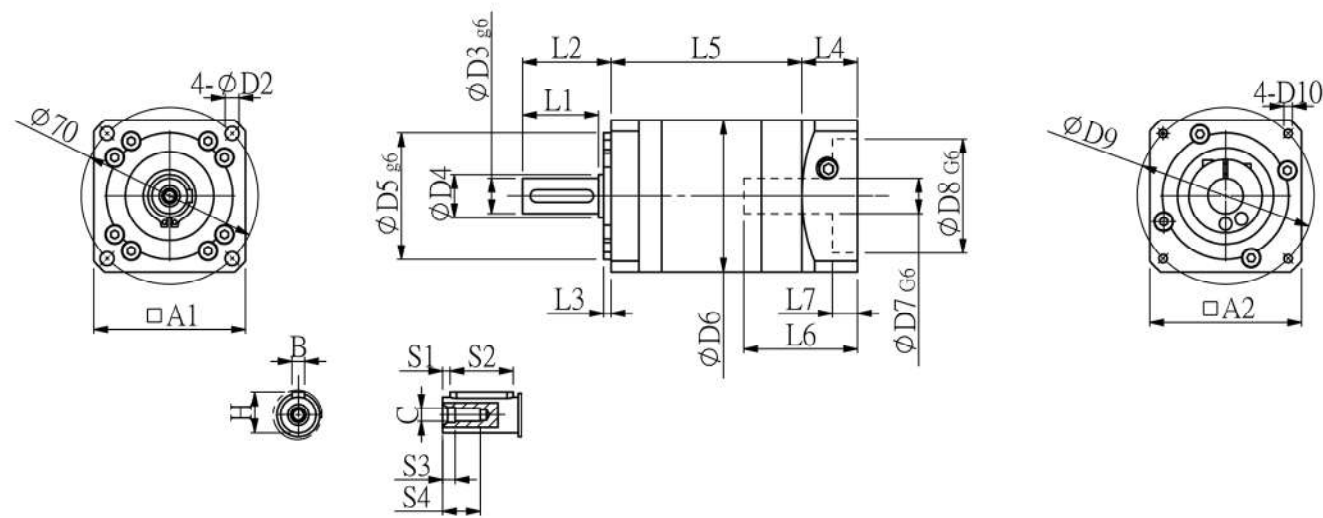
PRF90-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
100	6.5	20	25	80	90	19	70	90	M5	36	40.5	3	32	104.5	47	6	90	90	3	25	6	18	6	22.5	M5

**PRF SERIES TECHNICAL PARAMETERS AND SIZES**

**PRL SERIES TECHNICAL PARAMETERS AND SIZES**



PRF120-L1																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
130	8.5	25	35	110	120	22	110	145	M8	50	55	4	59	99	66	7	120	120	5	40	8	25	8	28	M10



PRF120-L2																									
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
130	8.5	25	35	110	120	22	110	145	M8	50	55	4	59	129	66	7	120	120	5	40	8	25	8	28	M10

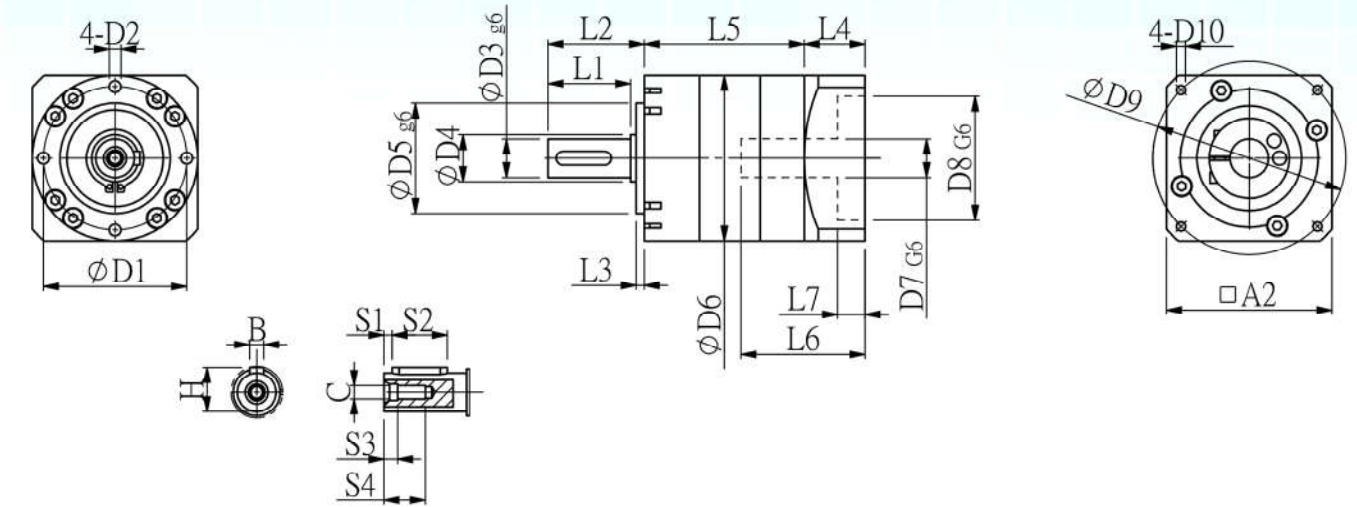
Parameter / Specification		PRL60	PRL80	PRL90	PRL120	PRL140		
Max. Torque	Nm	1.5* Rated Torque						
Emerg. Braking Torque	Nm	2* Rated Torque						
Max. Radial Torque	N	240	400	450	1240	2250		
Max. Axial Torque	N	220	420	430	1000	1500		
Torsional Stiffness	Nm/arcmin	1.8	4.7	4.85	11	22		
Max. Input Speed	rpm	8000	6000	6000	6000	4500		
Rated Input Speed	rpm	4000	3500	3500	3500	3000		
Noise	dB	≤58	≤60	≤60	≤65	≤68		
Aver. life	H	20000						
Full load-efficiency	%	L1≥96%, L2≥94%						
Backlash	P0	L1	arcmin	≤3	≤3	≤3	≤3	≤3
		L2	arcmin	≤5	≤5	≤5	≤6	≤6
Rotary	P1	L1	arcmin	≤6	≤6	≤6	≤8	≤8
		L2	arcmin	≤10	≤10	≤10	≤10	≤10
Interial	L1	3	Kg.cm <sup>2</sup>	0.46	0.77	1.73	12.78	21.4
		4	Kg.cm <sup>2</sup>	0.46	0.77	1.73	12.78	21.4
		5	Kg.cm <sup>2</sup>	0.46	0.77	1.73	12.78	21.4
		7	Kg.cm <sup>2</sup>	0.41	0.65	1.42	11.38	17.6
		10	Kg.cm <sup>2</sup>	0.41	0.65	1.42	11.38	17.6
		L2	12	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18
		15	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		20	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		25	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		28	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		40	Kg.cm <sup>2</sup>	0.44	0.72	1.49	12.18	17.4
		50	Kg.cm <sup>2</sup>	0.34	0.58	1.25	11.48	15.7
	100	Kg.cm <sup>2</sup>	0.34	0.58	1.25	11.48	15.7	



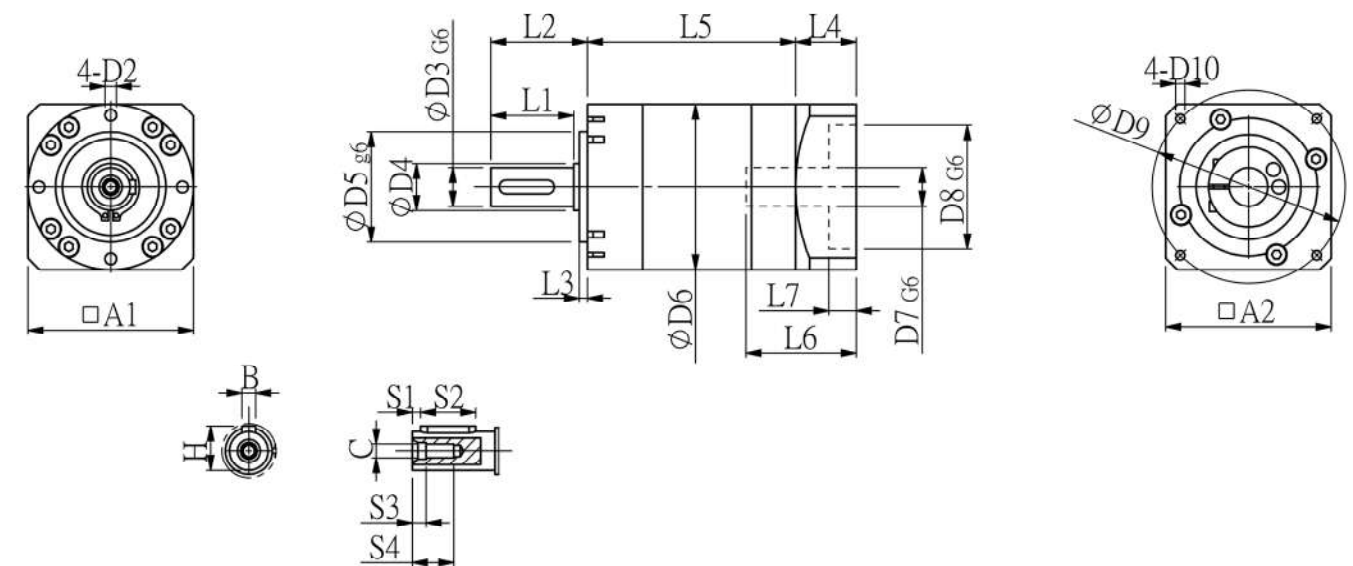
**PRL SERIES TECHNICAL PARAMETERS AND SIZES**

Parameter / Specification			PR60	PR90	PR120	PR150	PR180		
Rated Torque(Nm)	L1	3	30	115	208	424	558		
		4	45	142	320	650	1050		
		5	50	142	320	650	1200		
		7	50	110	230	550	1100		
		10	35	75	165	320	900		
	L2	12		115	208	424	588		
		15		142	208	424	588		
		16	45	142	320	650	1050		
		20	50	142	320	650	1050		
		25	50	142	320	650	1200		
		28	50	142	320	650	1050		
		30		115	208	424	588		
		35	50	142	330	650	1200		
		40	40	142	320	650	1050		
		50	35	142	320	650	1200		
		70	35	110	230	550	1100		
		100	35	75	165	320	900		
		Weight (Kg)	L1		1.6	4.5	8	17	35
			L2		2	6	11	22	43

**PRL SERIES TECHNICAL PARAMETERS AND SIZES**



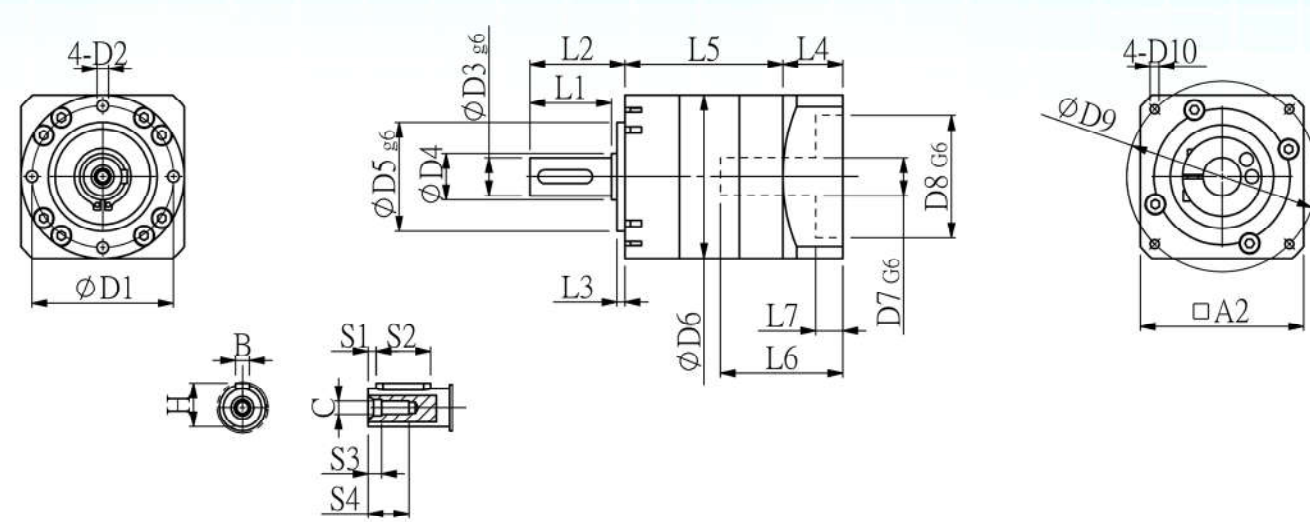
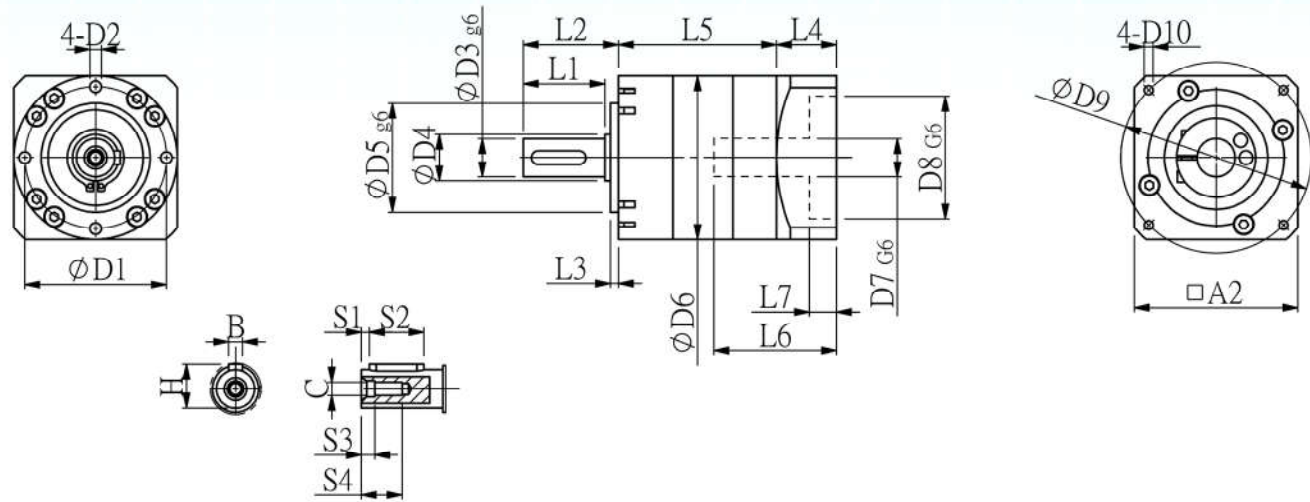
PRL60-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A2	S1	S2	S3	S4	B	H	C
52	M5	14	17	40	60	14	50	70	M4	30	35	3	22	58	32	4	60	3	20	5	18	5	16	M5



PRL60-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A2	S1	S2	S3	S4	B	H	C
52	M5	14	17	40	60	14	50	70	M4	30	35	3	22	75.5	32	4	60	3	20	5	18	5	16	M5

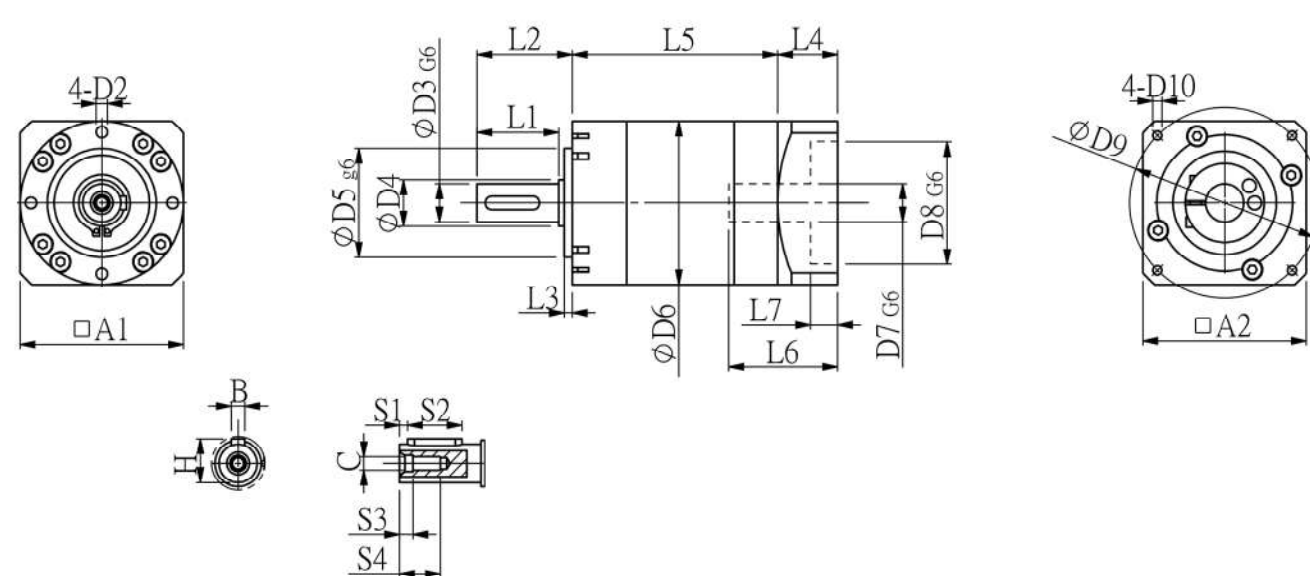
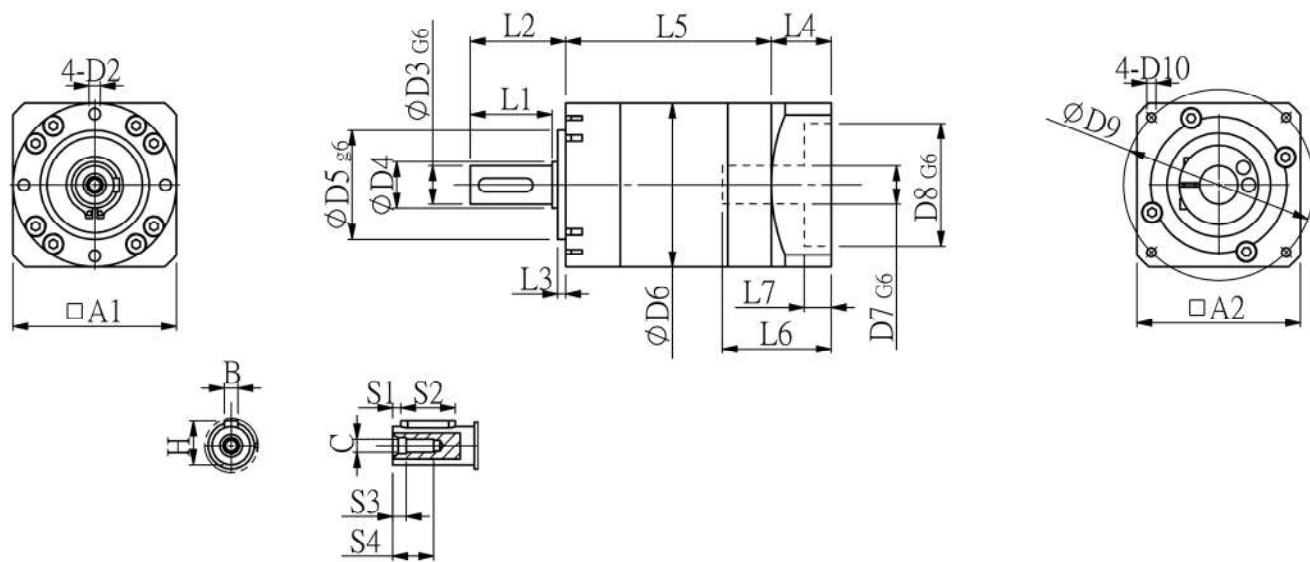
**PRL SERIES TECHNICAL PARAMETERS AND SIZES**

**PRL SERIES TECHNICAL PARAMETERS AND SIZES**



PRL80-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A2	S1	S2	S3	S4	B	H	C
70	M6	20	25	60	80	19	70	90	M5	36	40	3	38	64.5	42	5	80	4	25	5	18	6	22.5	M5

PRL90-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A2	S1	S2	S3	S4	B	H	C
80	M6	20	25	68	90	19	70	90	M5	36	40.5	3	32	82	47	6	90	3	25	6	18	6	22.5	M6



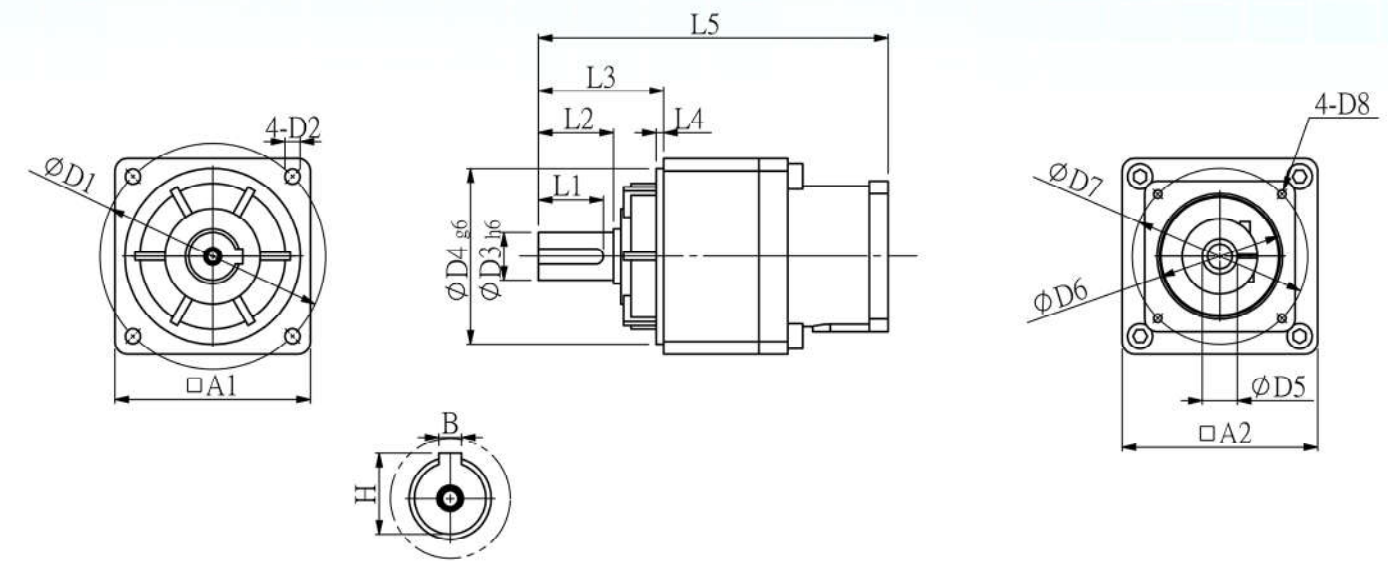
PRL80-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A2	S1	S2	S3	S4	B	H	C
70	M6	20	25	60	80	19	70	90	M5	36	40	3	38	86.5	42	5	80	4	25	5	18	6	22.5	M5

PRL90-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	A2	S1	S2	S3	S4	B	H	C
80	M6	20	25	68	90	19	70	90	M5	36	40.5	3	32	104.5	47	6	90	3	25	6	18	6	22.5	M6

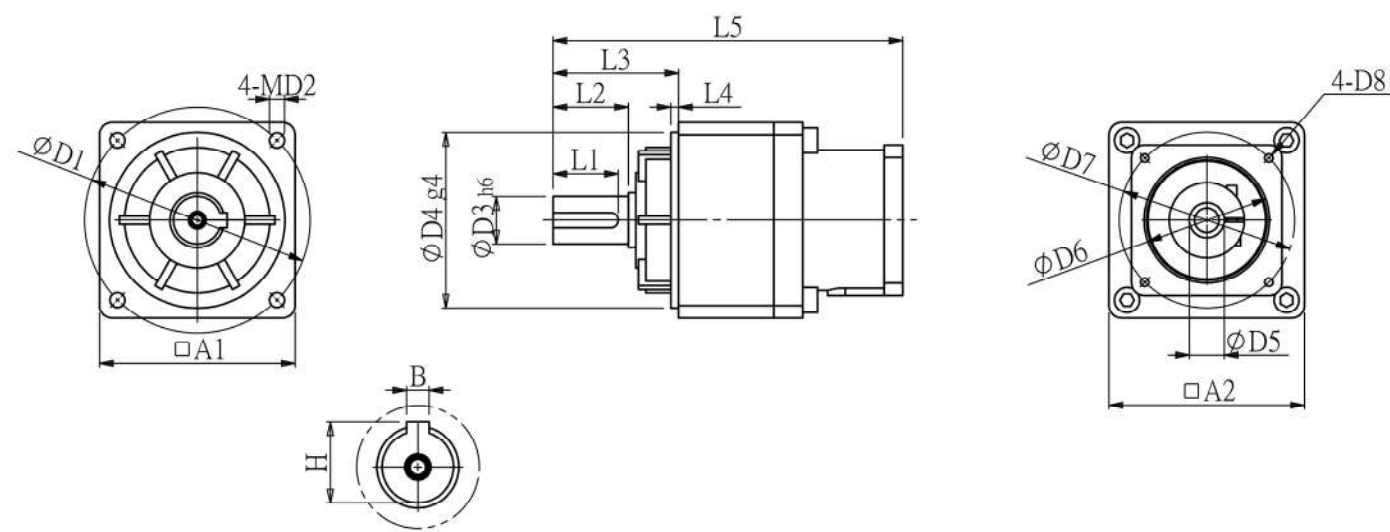
**PT SERIES TECHNICAL PARAMETERS AND SIZES**

Parameter / Specification		200W		400W		750W	
		S9C-200	5C-400	S9C-400	3C-750	5C-750	S9D-750
Rated torque(Nm)Tn		3.72	5.39	9.51	6.37	10.7	18.2
Max.Torque	Nm	11.3	16.2	28.5	19.3	32.1	54.7
Emerg. Braking Torque	Nm	29.2	19.7	29.2	20.6	34.3	54.7
Max. Radial Torque	N	1180	980	1180	784	980	1470
Max. Axial Torque	N	588	1180	588	392	490	735
Max.Input Speed	rpm	5000	5000	5000	5000	5000	5000
Rated Input Speed	rpm	3000	3000	3000	3000	3000	3000
Noise	dB	<60	<60	<60	<60	<60	<60
Aver. life	H			20000			
Full load-efficiency	%			≥96%			
Backlash	P0	arcmin	<5	<5	<5	<5	<5
	P1	arcmin	<15	<15	<15	<15	<15
Rotary Inertial		Kg.cm <sup>2</sup>	0.275	0.363	0.275	0.913	0.713

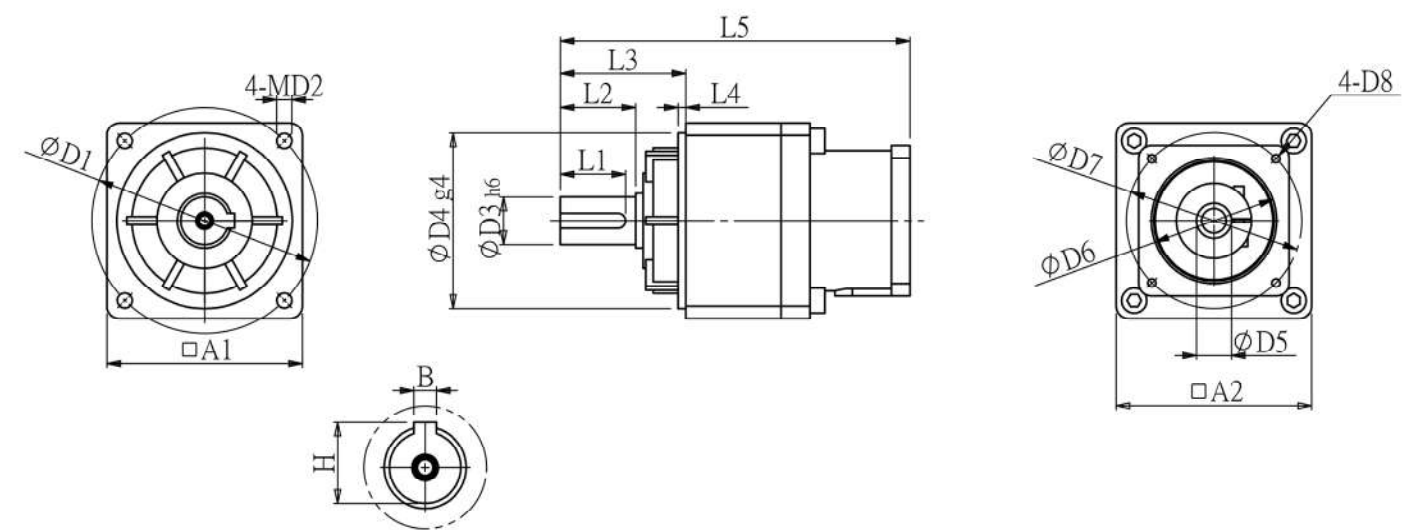
**PT SERIES TECHNICAL PARAMETERS AND SIZES**



PT-S9D-750																
D1	D2	D3	D4	D5	D6	D7	D8	L1	L2	L3	L4	L5	A1	A2	B	H
115	M8	24	90	19	70	90	M6	35	40	61	5	185.5	98	80	8	27

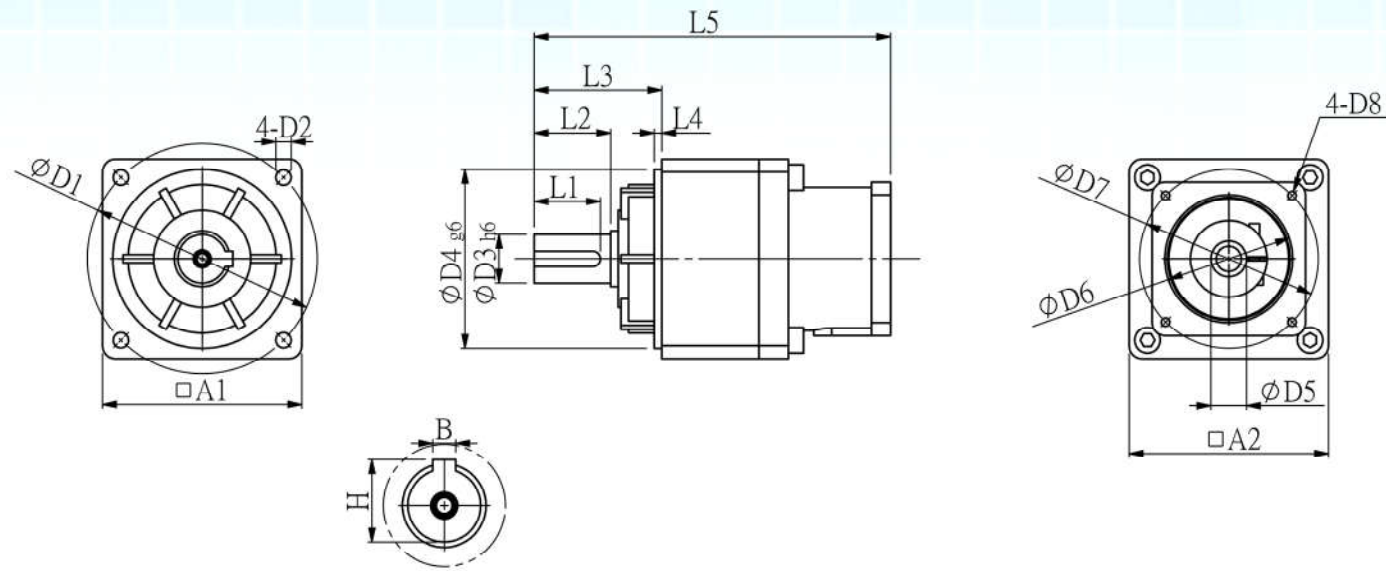


PT-3C、5C-750																
D1	D2	D3	D4	D5	D6	D7	D8	L1	L2	L3	L4	L5	A1	A2	B	H
90	M6	19	70	19	70	90	M5	26	30	50	3	143.5	78	80	6	21.5



PT-S9C-200																
D1	D2	D3	D4	D5	D6	D7	D8	L1	L2	L3	L4	L5	A1	A2	B	H
90	M6	19	70	11	50	70	M4	26	30	50	3	139.5	78	60	6	21.5

**PT SERIES TECHNICAL PARAMETERS AND SIZES**



PT-5C、S9C-400																
D1	D2	D3	D4	D5	D6	D7	D8	L1	L2	L3	L4	L5	A1	A2	B	H
90	M6	19	70	14	50	70	M4	26	30	50	3	139.5	78	60	6	21.5

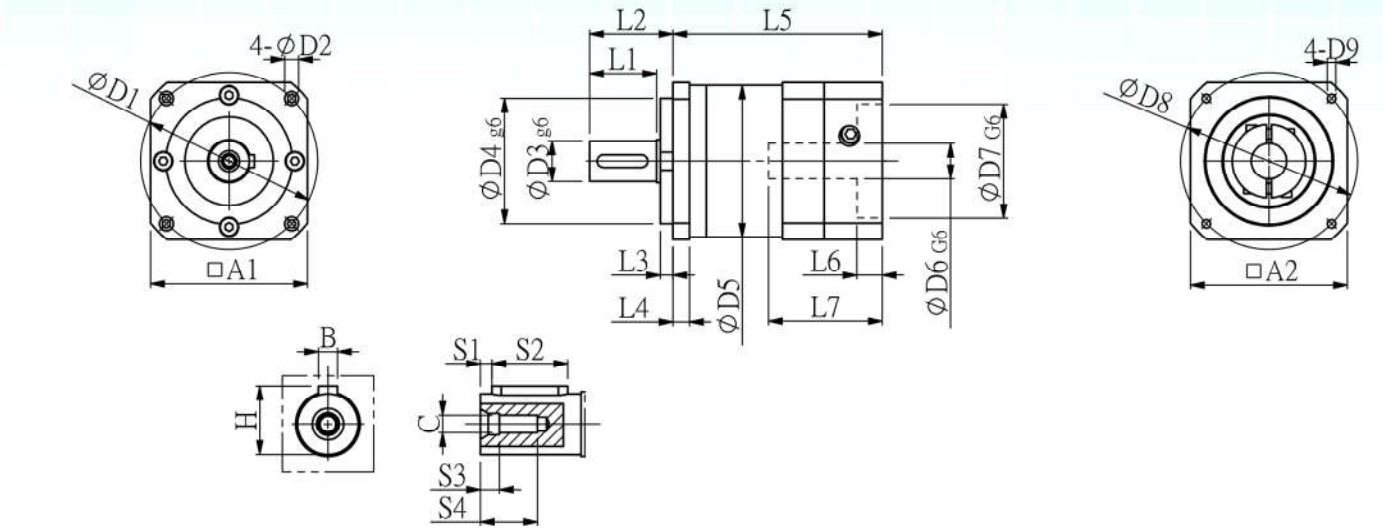
**PR SERIES TECHNICAL PARAMETERS AND SIZES**

Parameter / Specification		PR60	PR90	PR120	PR150	PR180		
Max.Torque	Nm	2* Rated Torque						
Emerg. Braking Torque	Nm	3* Rated Torque						
Max. Radial Torque	N	1100	2000	5500	9000	14200		
Max. Axial Torque	N	550	1000	2750	4500	7100		
Torsional Stiffness	Nm/arcmin	5	18	28	51	142		
Max.Input Speed	rpm	5000	5000	4500	4500	4000		
Rated Input Speed	rpm	3000	3000	3000	3000	3000		
Noise	dB	≤65	≤65	≤68	≤68	≤70		
Aver. life	H	20000						
Full load-efficiency	%	L1≥96%, L2≥93%						
Backlash	P0	L1	arcmin	≤3	≤3	≤3	≤3	≤3
		L2	arcmin	≤5	≤5	≤5	≤6	≤6
Rotary	P1	L1	arcmin	≤6	≤6	≤6	≤6	≤6
		L2	arcmin	≤10	≤10	≤10	≤10	≤10
Interial	L1	3	Kg.cm <sup>2</sup>	0.135	0.65	3.13	12.41	29.15
		4	Kg.cm <sup>2</sup>	0.136	0.52	2.79	7.66	24.78
		5	Kg.cm <sup>2</sup>	0.136	0.45	2.55	7.66	23.76
		7	Kg.cm <sup>2</sup>	0.13	0.47	2.32	7.54	23.68
		10	Kg.cm <sup>2</sup>	0.073	0.39	2.28	7.57	23.68
	L2	12	Kg.cm <sup>2</sup>	0.127	0.72	2.56	7.57	23.71
		15	Kg.cm <sup>2</sup>	0.073	0.52	2.4	7.55	23.73
		20	Kg.cm <sup>2</sup>	0.074	0.37	1.65	7.57	23.66
		25	Kg.cm <sup>2</sup>	0.074	0.37	1.58	7.46	23.66
		28	Kg.cm <sup>2</sup>	0.074	0.35	1.57	7.46	23.58
		40	Kg.cm <sup>2</sup>	0.078	0.37	1.58	7.38	23.54
		50	Kg.cm <sup>2</sup>	0.078	0.36	1.57	7.29	23.52
		100	Kg.cm <sup>2</sup>	0.079	0.5	1.5	7.2	23.46

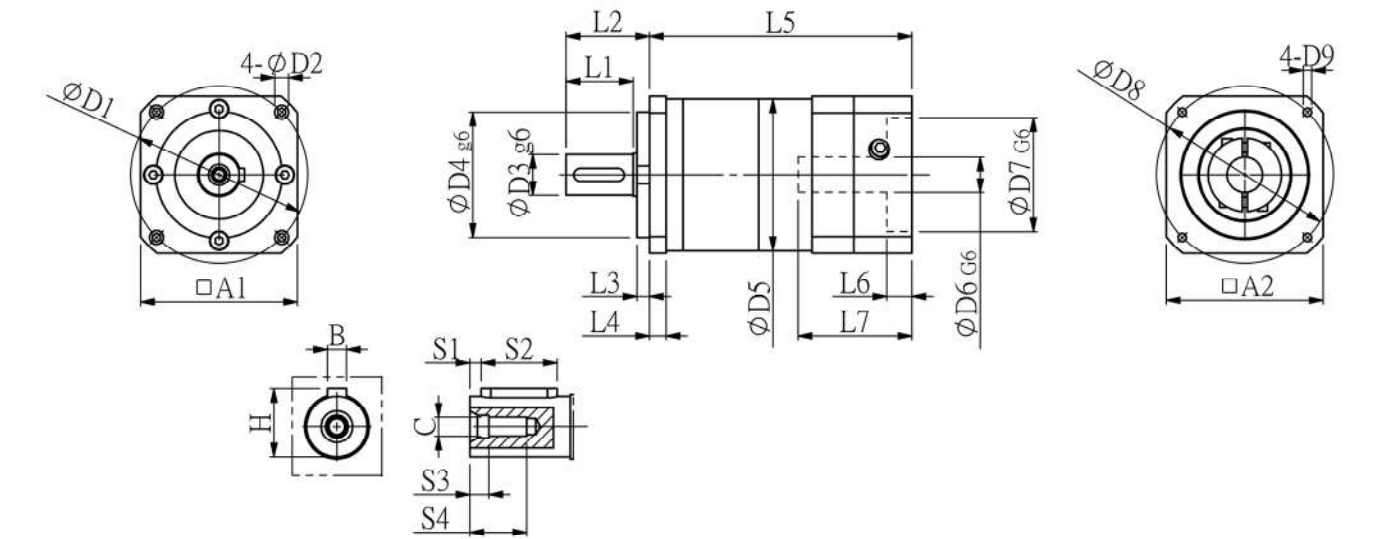
**PR SERIES TECHNICAL PARAMETERS AND SIZES**

**PR SERIES TECHNICAL PARAMETERS AND SIZES**

Parameter / Specification		PR60	PR90	PR120	PR150	PR180		
Rated Torque(Nm)	L1	3	30	115	208	424	558	
		4	45	142	320	650	1050	
		5	50	142	320	650	1200	
		7	50	110	230	550	1100	
		10	35	75	165	320	900	
	L2	12		115	208	424	588	
		15		142	208	424	588	
		16	45	142	320	650	1050	
		20	50	142	320	650	1050	
		25	50	142	320	650	1200	
		28	50	142	320	650	1050	
		30		115	208	424	588	
		35	50	142	330	650	1200	
		40	40	142	320	650	1050	
		50	35	142	320	650	1200	
		70	35	110	230	550	1100	
		100	35	75	165	320	900	
		Weight (Kg)	L1	1.6	4.5	8	17	35
			L2	2	6	11	22	43



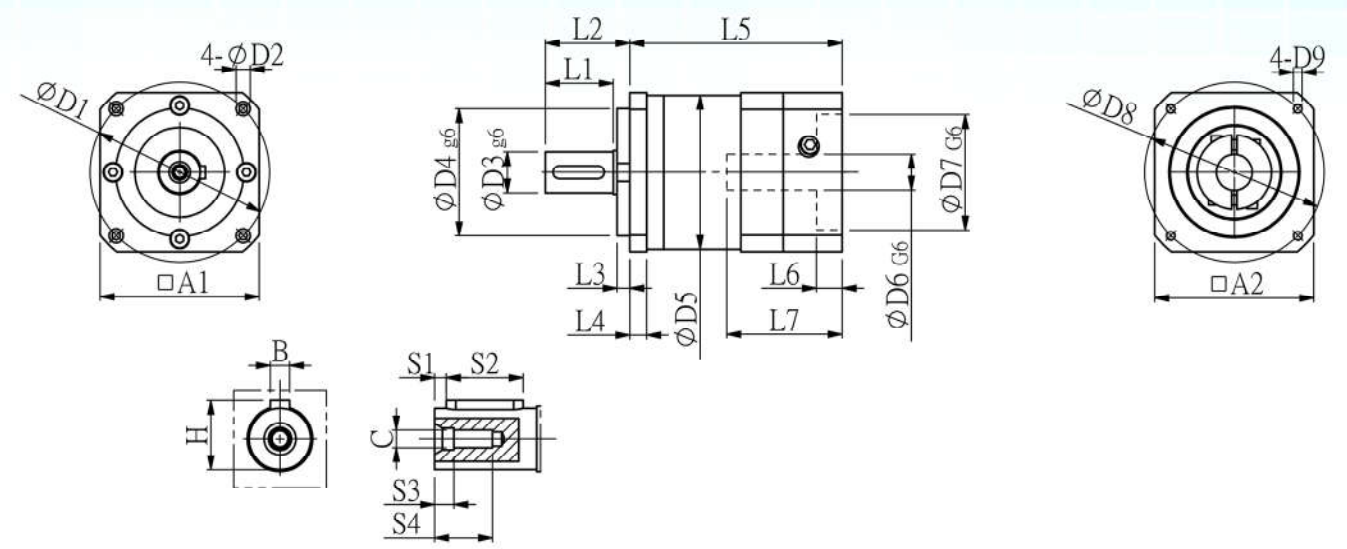
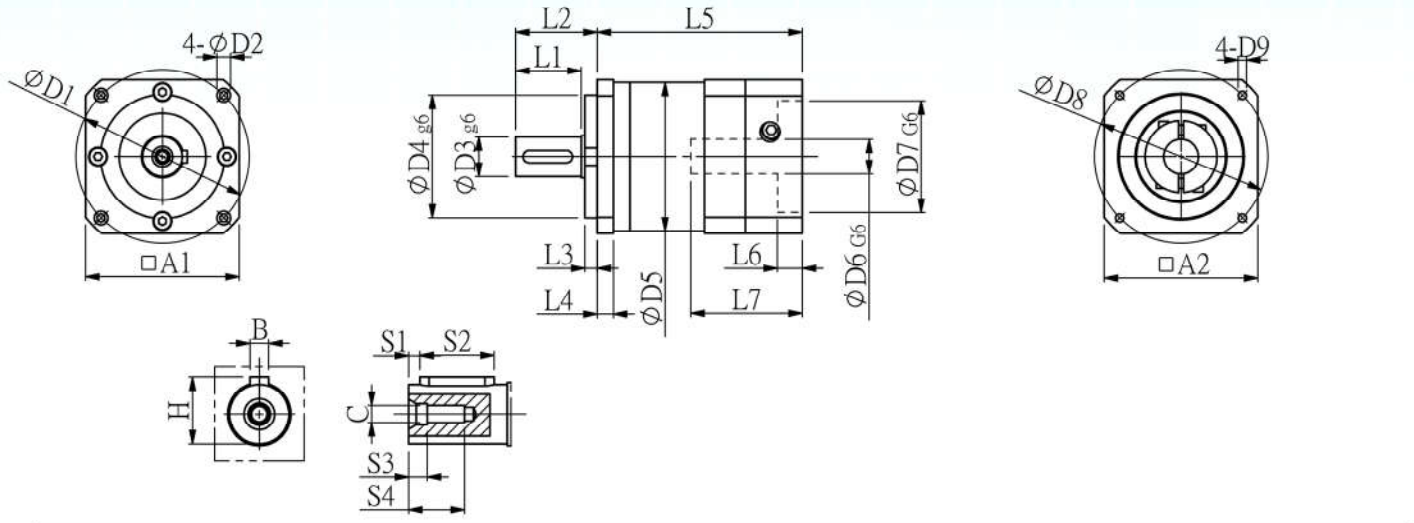
PR60-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
70	5.5	16	50	60	14	50	70	M4	26.5	33.5	5	6.5	83	4	34	62	62	3	20	5	18	5	18	M5



PR60-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
70	5.5	16	50	60	14	50	70	M4	26.5	33.5	5	6.5	104	4	34	62	62	3	20	5	18	5	18	M5

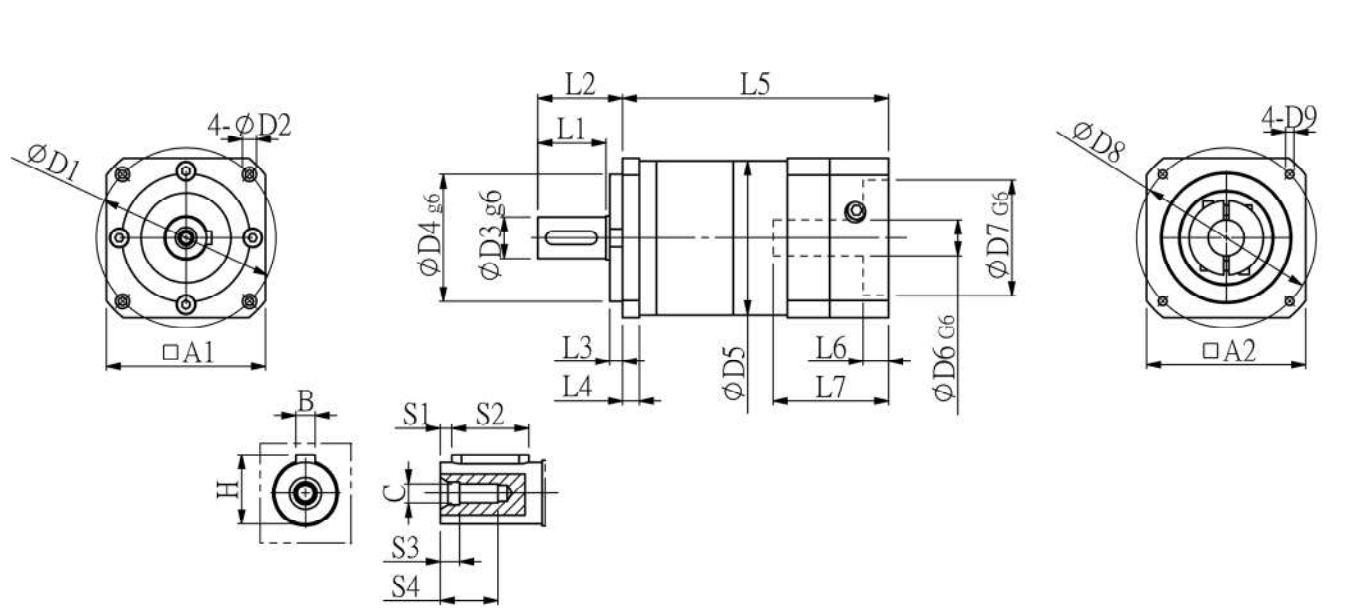
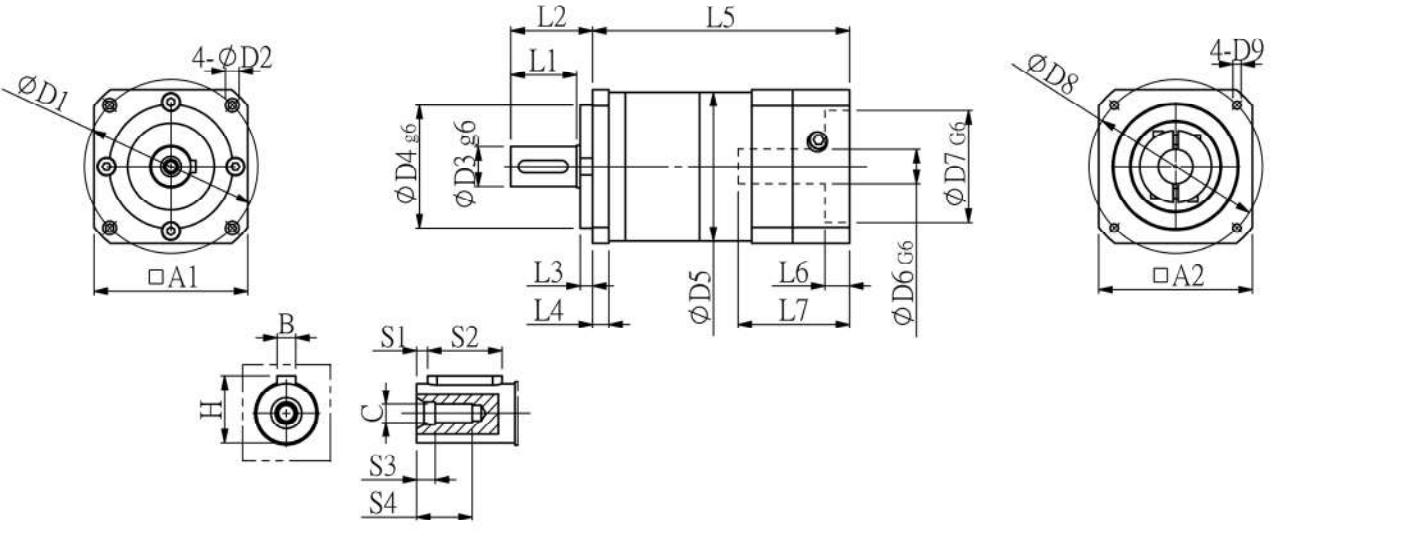
**PR SERIES TECHNICAL PARAMETERS AND SIZES**

**PR SERIES TECHNICAL PARAMETERS AND SIZES**



PR90-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
100	6.5	22	80	90	19	70	90	M5	40	47	5	40	108	5	45	90	90	3	25	6	20	6	24.5	M6

PR120-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
145	8.5	32	110	120	22	110	145	M8	59	69	10	15	148	6	65	120	120	3	40	6	20	10	35	M8

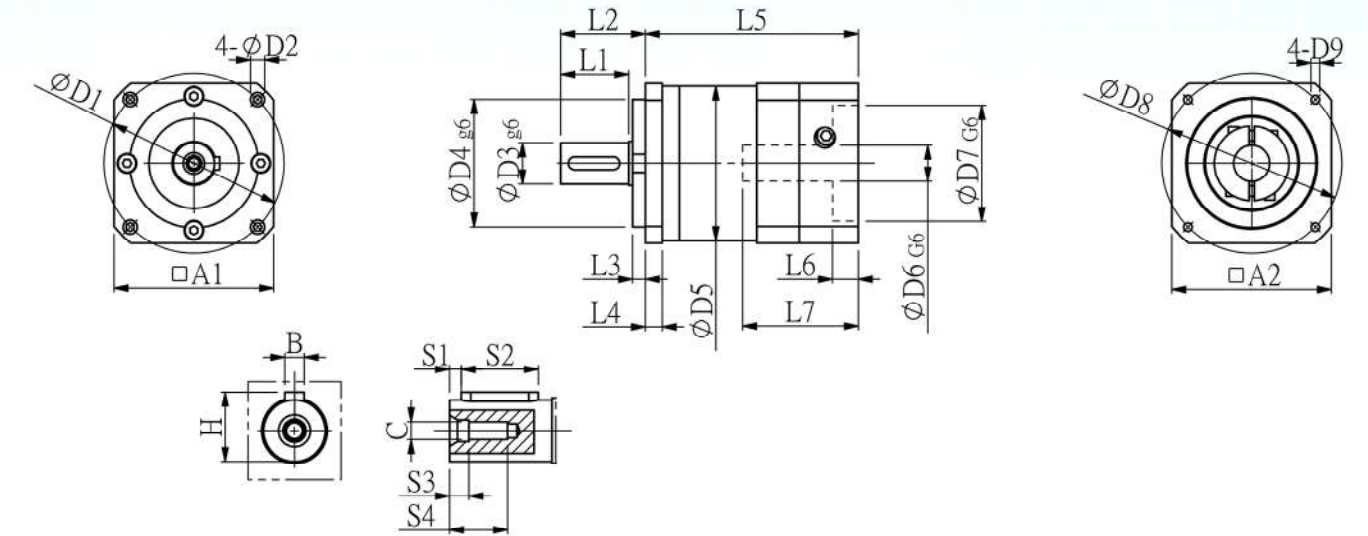
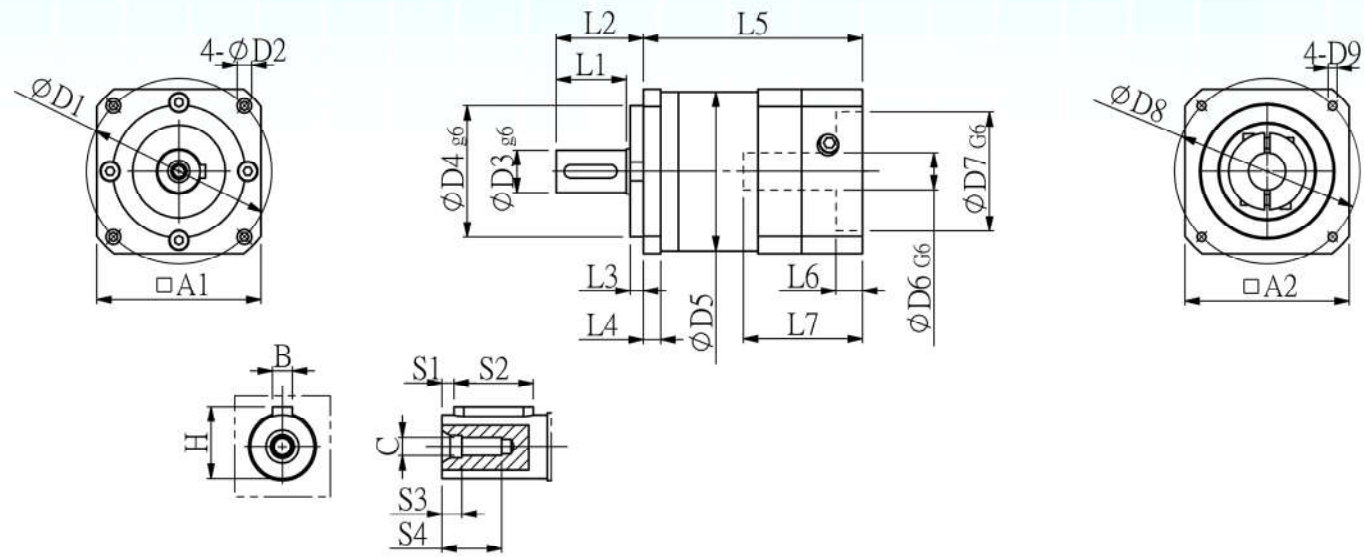


PR90-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
100	6.5	22	80	90	19	70	90	M5	40	47	5	10	13.5	5	45	90	90	3	25	6	20	6	24.5	M6

PR120-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
145	8.5	32	110	120	22	110	145	M8	59	69	10	15	181	7	65	120	120	3	40	6	20	10	35	M8

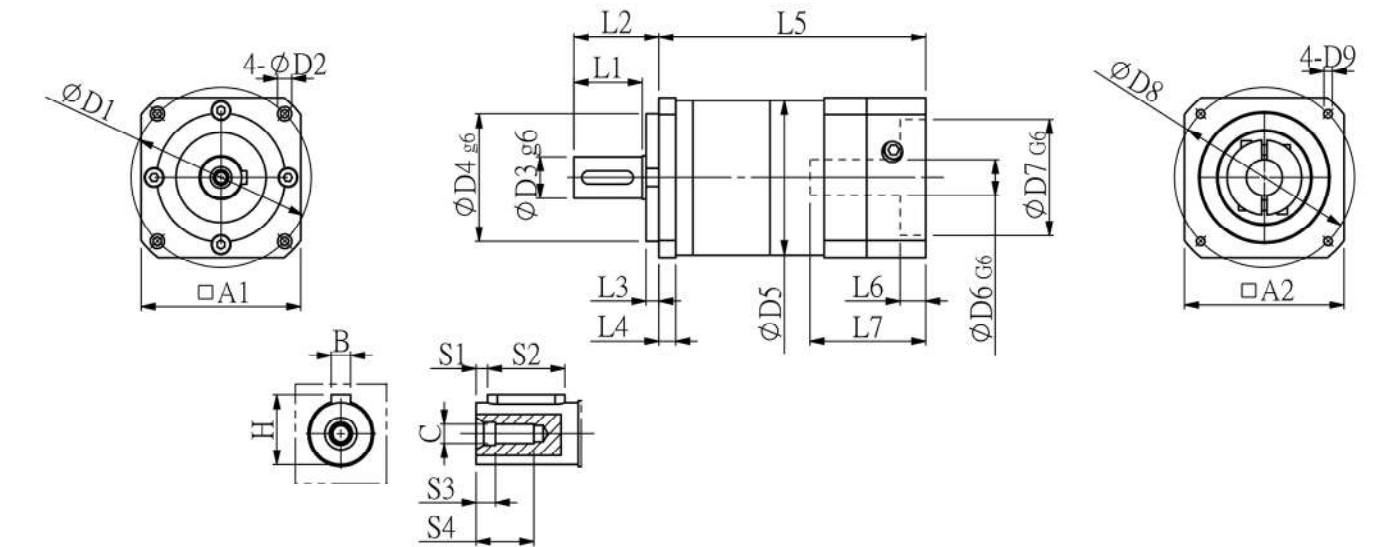
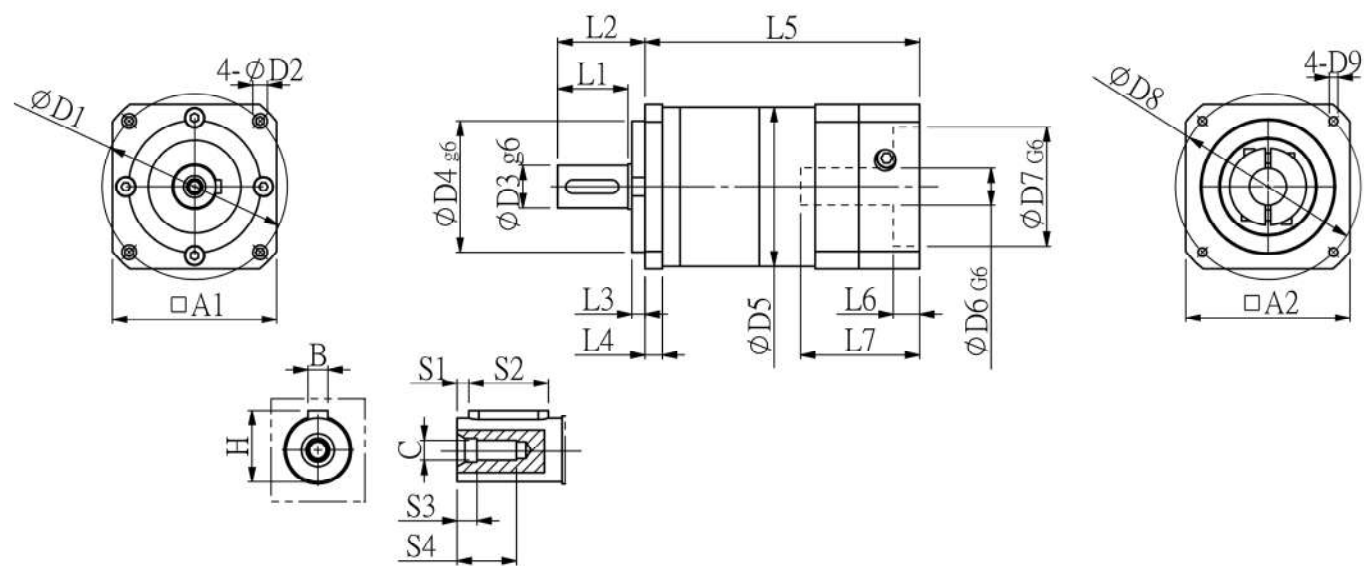
**PR SERIES TECHNICAL PARAMETERS AND SIZES**

**PR SERIES TECHNICAL PARAMETERS AND SIZES**



PR150-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
165	10.5	40	130	142	35	114.3	200	M12	68	78	4	15	189	7	82	142	180	5	45	8	30	12	43	M12

PR180-L1																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
215	13	55	160	182	35	114.3	200	M12	83.5	96	10	26	231	10	86	182	182	6	70	9	30	16	59	M12



PR150-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
165	10.5	40	130	142	35	114.3	200	M12	68	75	4	15	230	7	82	142	180	5	45	8	30	12	43	M12

PR180-L2																								
D1	D2	D3	D4	D5	D6	D7	D8	D9	L1	L2	L3	L4	L5	L6	L7	A1	A2	S1	S2	S3	S4	B	H	C
215	13	55	160	182	35	114.3	200	M12	83.5	96	10	26	290	10	86	182	182	6	70	9	30	16	59	M12