

# High Precision Flange Output Planetary Gearbox

## VRT



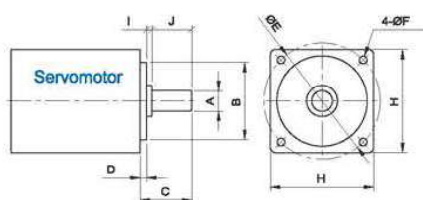
- 1. Quiet operation  
Helical gears are used to achieve smooth and quiet operation.
- 2. High precision  
The backlash is less than 3 arcmin and the positioning is accurate.
- 3. High rigidity & torque  
The use of integral ball bearings greatly improves the rigidity and torque.
- 4. Methods of flange and connector  
It can be installed on any motor in the world.
- 5. No grease leakage  
The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.
- 6. Convenient maintenance  
No need to replace the grease in the product life period, and the installation is more convenient.

## Model Selection of Speed Reducers

### VRT Type

VRT090	-	10	-	S1	-	P1	/	Motor
<b>Reducer Model</b> VRT047, VRT064, VRT090, VRT110 VRT140, VRT200, VRT255			<b>Output flange mode</b> S1: Standard flange face output S2: Non standard flange face output		<b>Motor Model</b> Motor Manufacturer & Model			
<b>Ratio</b> 1-stage: 3, 4, 5, 6, 7, 8, 9, 10 2-stage: 12, 15, 16, 20, 25, 28, 30, 35, 40, 50, 70, 80, 100			<b>Backlash Grade</b> P0: High precision backlash P1: Precision backlash P2: Standard backlash					

The gearbox matching motor needs to be confirmed with following dimensions :



A	B	C	D	E	F	H	I	J
Naming Scheme: <input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/>								
Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.			

## VRT Reducer Specifications

Specs	Unit	Stage	Ratio	VRT047	VRT064	VRT090	VRT110	VRT140	VRT200	VRT255
Rated Output Torque / T2N	Nm	1	4	19	50	133	278	555	1050	1700
			5	22	60	160	330	650	1200	2000
			7	19	50	140	300	550	1100	1800
			10	14	40	100	230	450	900	1500
		2	20	19	50	133	278	555	1050	1700
			25	22	60	160	330	650	1200	2000
			35	19	50	140	300	550	1100	1800
			40	19	45	120	260	500	1000	1600
			50	22	60	160	330	650	1200	2000
			70	19	50	140	300	550	1100	1800
100	14	40	100	230	450	900	1500			
Max.Output Torque / T <sub>max1</sub>	Nm	1,2	4-100	3Times of Nominal Output Torque						
Rated Input Speed / $\Omega_{in}$	rpm	1,2	4-100	5000	5000	4000	4000	3000	3000	2000
Max.Input Speed / $\Omega_{in}$	rpm	1,2	4-100	10000	10000	8000	8000	6000	6000	4000
Micro Backlash P0	arcmin	1	4-10	≤1	≤1	≤1	≤1	≤1	≤1	≤1
		2	12-100	≤3	≤3	≤3	≤3	≤3	≤3	≤3
Precision Backlash P1	arcmin	1	4-10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
		2	20-100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Standard Backlash P2	arcmin	1	4-10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
		2	20-100	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arcmin	1,2	4-100	8	13	30	80	150	450	1010
Max.Radial Force / F <sub>rad</sub> <sup>2</sup>	N	1,2	4-100	43	125	235	430	1300	3064	5900
Max.Axial Force / F <sub>axial</sub> <sup>2</sup>	N	1,2	4-100	990	1050	2850	2990	10590	16660	29430
Service Life	hr	1,2	4-100	22000h						
		1	4-10	≥97%						
Efficiency / $\eta$	%	2	20-100	≥94%						
		1	4-10	0.7	1.3	3.2	5.8	12.3	33	57.9
Weight	kg	2	20-100	1	1.5	4.1	7.6	16.8	38	72.6
		1,2	4-100	(-15°C ~ +90°C)						
Lubrication		1,2	4-100	(Synthetic Grease)						
Protection Class		1,2	4-100	IP65						
Mounting Position		1,2	4-100	(Any Direction)						
Noise Level (n1=3000rpm, No load)	dB(A)	1,2	4-100	≤56	≤58	≤60	≤63	≤65	≤67	≤70

## Reducer Rotary Inertia

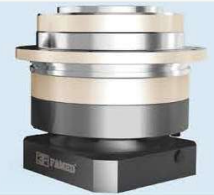
Specs	Unit	Stage	Ratio	VRT047	VRT064	VRT090	VRT110	VRT140	VRT200	VRT255
Moment of Inertia	kg.cm <sup>2</sup>	1	4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
			5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
		2	20-40	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			50-100	0.03	0.03	0.13	0.44	2.57	7.03	22.51

1. Max. reduction ratio(=Nin/Nout) 2.The Max. acceleration torque T2B=60% of T2NOT  
 3. When output speed is 100rpm, acting on the output shaft center position, \*Continuous operation, service life is 15000hrs.

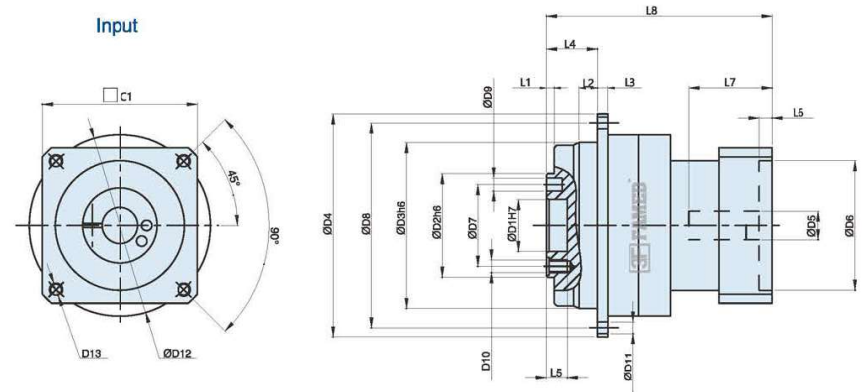
## MODEL: VRT

1-Stage

Ratio: 3, 4, 5, 6, 7, 8, 9, 10



### Dimensions:



Unit:mm

Size	VRT047-L1	VRT064-L1	VRT090-L1	VRT110-L1	VRT140-L1	VRT200-L1	PAD255-L1
D1	12	20	31.5	40	50	80	100
D2	28	40	63	80	100	160	180
D3	47	64	90	110	140	200	255
D4	72	86	118	145	179	247	300
D5	≤11/≤12	11(8-14)	19(14-22)	24(22-28)	24(24-48)	35(35-48)	43(48-55)
D6	30	30(30-50)	50(50-110)	110	110(110-114.3)	114.3(114.3-200)	200
D7	20	31.5	50	63	80	125	140
D8	67	79	109	135	168	233	280
D9	Ø3	Ø5x深度(D)8	Ø6x深度(D)7	Ø6x深度(D)7	Ø6x深度(D)7	Ø10x深度(D)10	Ø12x深度(D)10
D10	4-M3	7-M5x深度(D)8	8-M6x深度(D)12	11-M6x深度(D)12	11-M8x深度(D)17	11-M10x深度(D)20	12-M16x深度(D)25
D11	8-Ø3.4	8-Ø4.5	8-Ø5.5	8-Ø5.5	12-Ø6.6	12-Ø9	16-Ø13.5
D12	46	45(45-70)	70(70-145)	145	145(145-200)	200(200-235)	235
D13	M4	M4-M5	M5-M8	M8	M8-M12	M12	M12
L1	3	3	6	6	6	8	12
L2	7	7	10	10	14.5	15	21.5
L3	4	4	7	8	10	12	18
L4	19.5	19.5	30	29	38	50	66
L5	4	8	12	13	12	16	20
L6	3.5	4-5	5-10	10	6-8	6-10	10
L7	30	28(28-34)	32(32-59)	60	73(73-115)	88(88-117)	119.5
L8	70	80.5-87	97(97-120)	142	159(159-201)	196(196-229)	255
C1	48	60(40-60)	90(60-130)	130	130(130-180)	180(180-220)	220

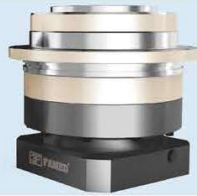
- Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.  
 Note 2: The reducer output shaft size and length can be customized for customers.  
 Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

# MODEL: VRT

2-Stage

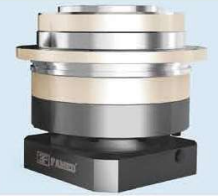
Ratio: 12, 15, 16, 20, 25, 28, 30, 35

40, 50, 70, 80, 100

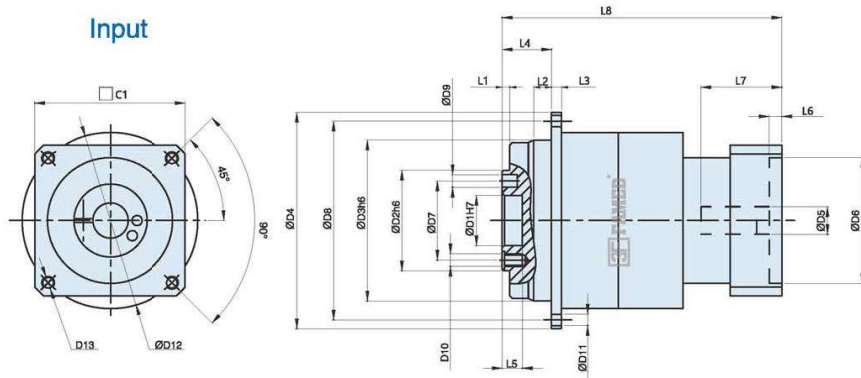


# MODEL: VRT

Output Dimensions:



Dimensions:



Unit:mm

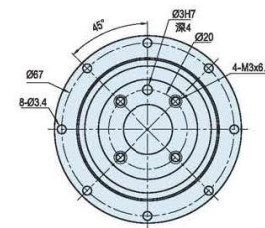
Size	VRT047-L2	VRT064-L2	VRT090-L2	VRT110-L2	VRT140-L2	VRT200-L2	VRT255-L2
D1	12	20	31.5	40	50	80	100
D2	28	40	63	80	100	160	180
D3	47	64	90	110	140	200	255
D4	72	86	118	145	179	247	300
D5	≤11/≤12	11(8-14)	19(14-22)	19(22-28)	19(19-38)	35(24-48)	38(38-55)
D6	30	30(30-50)	50(50-110)	70(70-110)	70(70-114.3)	110(110-200)	114.3(114.3-200)
D7	20	31.5	50	63	80	125	140
D8	67	79	109	135	168	233	260
D9	Ø3	Ø5x深度(D)8	Ø6x深度(D)7	Ø6x深度(D)7	Ø8x深度(D)7	Ø10x深度(D)10	Ø12x深度(D)10
D10	4-M3	7-M5x深度(D)8	8-M6x深度(D)12	11-M6x深度(D)12	11-M8x深度(D)17	11-M10x深度(D)20	12-M16x深度(D)25
D11	8-Ø3.4	8-Ø4.5	8-Ø5.5	8-Ø5.5	12-Ø6.6	12-Ø9	16-Ø13.5
D12	46	45(45-70)	70(70-145)	90(90-145)	90(90-200)	145(145-235)	200(200-235)
D13	M4	M4-M5	M5-M8	M6-M8	M5-M12	M8-M12	M12
L1	3	3	6	6	6	8	12
L2	7	7	10	10	14.5	15	20
L3	4	4	7	8	10	12	18
L4	19.5	19.5	30	29	38	50	65
L5	4	8	12	13	12	16	20
L6	3.5	4-5	5-10	6-10	6-8	6-10	6-10
L7	30	28(28-34)	34(34-59)	43(43-60)	65(65-85)	73(73-117)	73(73-117)
L8	97.5	103(103-110)	123(123-139)	150(150-176)	195(195-211)	292(292-336)	306(306-322)
C1	48	60(40-60)	90(60-130)	90(60-130)	90(60-180)	180(130-220)	180(180-220)

Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.

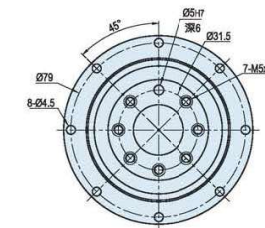
Note 2: The reducer output shaft size and length can be customized for customers.

Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

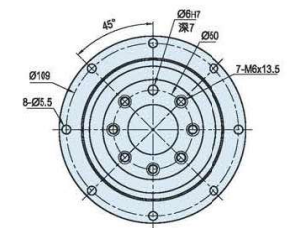
VRT047 OUTPUT



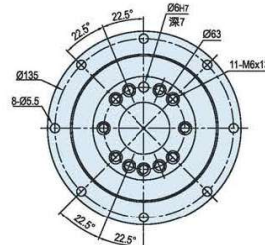
VRT064 OUTPUT



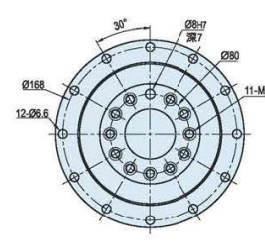
VRT090 OUTPUT



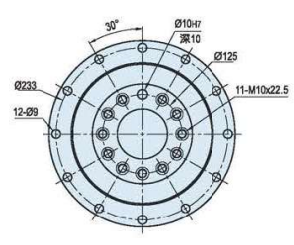
VRT110 OUTPUT



VRT140 OUTPUT



VRT200 OUTPUT



VRT255 OUTPUT



MOTIONtek



Planetary reducer standard interface table. For customized motor interfaces, please contact MOTIONtek



**PAB**

Model	PAB-042	PAB-060	PAB-090	PAB-115	PAB-142	PAB-180	PAB-220
Input dimensions (standard)	8-30-46(45)-M4(M3)	14-50-70-M5(M4)	19-70-90-M6(M5)	24(22)-110-145-M8	35-114.3-200-M12	38-180-200-M12	55-215-235-M12
Output shaft diameter (standard)	13	16	22	32	40	55	75

**PAR**

Model	PAR-042	PAR-060	PAR-090	PAR-115	PAR-142	PAR-180	PAR-220
Input dimensions (standard)	8-30-46(45)-M4(M3)	14-50-70-M5 (M4)	19-70-90-M6(M5)	24(22)-110-145-M8	35-114.3-200-M12	38-180-220-M12	55-215-235-M12
Output shaft diameter (standard)	13	16	22	32	40	55	75

**VRT**

Model	VRT-047	VRT-064	VRT-090	VRT-110	VRT-140	VRT-200	VRT-255
Input dimensions (standard)	8-30-46(45)-M4(M3)	14-50-70-M5 (M4)	19-70-90-M6(M5)	24(22)-110-145-M8	35-114.3-200-M12	35-114.3-200-M12	48-200-235-M16