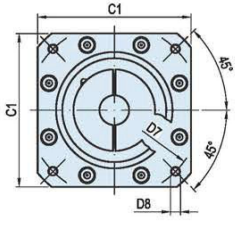
MODEL: VRL

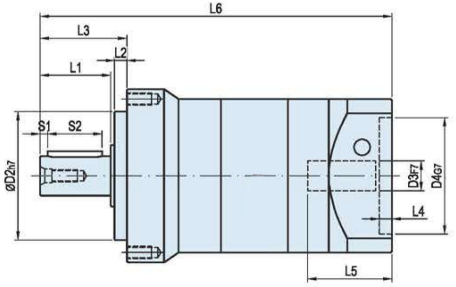
2-Stage

Ratio: 15, 20, 25, 30, 35, 40, 45, 50,
60, 70, 80, 90, 100

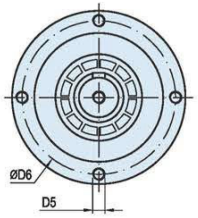
Dimensions:

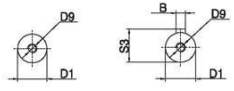
Input





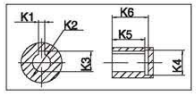
Output





Output shaft type S1

Output shaft type S2



Output hole type S3

Unit:mm

Size	VRL070-L1	VRL090-L2	VRL120-L2	VRL155-L2	VRL205-L2	VRL235-L2
D1	ϕ16	ϕ22	ϕ32	ϕ40	ϕ55	ϕ75
D2	ϕ52	ϕ68	ϕ90	ϕ120	ϕ160	ϕ180
D3	ϕ14 (ϕ11-14)	ϕ19 (ϕ11-19)	ϕ22 (ϕ16-24)	ϕ24 (ϕ19-35)	ϕ35 (ϕ22-35)	ϕ42 (ϕ35-42)
D4	ϕ50	ϕ70 (ϕ50-ϕ80)	ϕ110 (ϕ70-ϕ110)	ϕ110 (ϕ114.3)	ϕ110 (ϕ114.3)	ϕ180 (ϕ114.3-200)
D5	4-M5X10L	4-M6X12L	4-M8X16L	4-M10X20L	4-M12X22L	4-M16X28L
D6	ϕ62	ϕ80	ϕ108	ϕ140	ϕ184	ϕ210
D7	ϕ70	ϕ90 (ϕ70-100)	ϕ145 (ϕ90-145)	ϕ145 (ϕ145-200)	ϕ145 (ϕ145-200)	ϕ215 (ϕ200-235)
D8	4-M5 (M4)	4-M6 (M4-M6)	4-M8 (M5-M8)	4-M8 (M8-M12)	4-M8 (M8-M12)	4-M12
D9	M5X0.8P	M8X1.25P	M12X1.75P	M16X2P	M20X2.5P	M20X2.5P
L1	28.5	36.5	51	79	82	105
L2	5	6	9	12	15	18
L3	35	44	62	94	100	126
L4	5	5	8 (7-8)	11 (6-11)	8 (8-11)	8 (7-10)
L5	34	34 (≤44)	44 (≤60)	64.5 (≤81.5)	72.5 (≤82)	85 (≤120)
L6	142	172.5 (162.5-172.5)	230.5 (214.5-230.5)	286 (286-303)	340 (330.5-340)	407 (402-437)
C1	65	80 (65-86)	130 (90-130)	130 (130-180)	150 (150-180)	200 (180-220)
S1	3	4	5	5	6	7
S2	22	28	40	65	70	90
S3	18	24.5	35	43	59	79.5
B	5	6	10	12	16	20
K1	4	6	8	10	14	18
K2	ϕ11	ϕ22	ϕ28	ϕ38	ϕ50	ϕ60
K3	12.8	24.5	31.3	41.3	53.8	64.4
K4	ϕ16	ϕ32	ϕ38	ϕ48	ϕ60	ϕ72
K5	15	20	27	35	43	60
K6	18	24	32	40	50	65

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.

PRECISION PLANETARY GEARBOX

EVL

- 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 & torqueThe 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

EVL Type

EVL090 - 10 - S1 - P1 / Motor

Reducer Model
EVL070, EVL090, EVL120
EVL145, EVL180

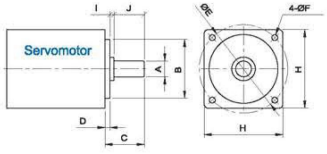
Output Shaft Keyway
S1:(Solid Output Shaft No Keyway)
S2: Standard (Keyway)
S3: Output for holes

Motor Model
Motor Manufacturer & Model

Ratio
1-stage: 3, 4, 5, 6, 7, 8, 9, 10
2-stage: 15, 20, 25, 30, 35, 40, 45, 50,
60, 70, 80, 90, 100

Backlash Grade
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:

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.

EVL Reducer Specifications

Specs	Unit	Stage	Ratio	EVL070	EVL090	EVL120	EVL145	EVL180
Rated Output Torque / T2N	Nm	1	3	45	130	230	450	900
			4	50	140	290	542	1050
			5	60	160	330	650	1200
			6	55	150	310	600	1100
			7	50	140	300	550	1100
			8	45	120	260	500	1000
			9	40	100	230	450	900
			10	40	100	208	342	588
			14	45	130	230	450	900
			20	50	140	290	542	1050
		2	15	60	160	330	650	1200
			20	55	150	310	600	1100
			25	60	160	330	550	1100
			30	45	120	260	500	1000
			35	40	100	230	450	900
			40	60	160	330	650	1200
			50	50	140	300	550	1100
			70	45	120	260	500	1000
			80	40	100	230	450	900
			100	40	100	208	342	588
			120	—	128	305	495	1095
			140	—	128	295	525	1095
			160	—	118	255	515	995
			180	—	98	225	445	895
			200	—	98	225	445	895
Max.Output Torque / T_{2NOT}[1]	Nm	1,2	3~200	3Times of Nominal Output Torque				
Rated Input Speed / n_{1N}	rpm	1,2	3~200	3000	3000	3000	2500	2000
Max.Input Speed / n_{1B}	rpm	1,2	3~200	6000	6000	5500	4500	4500
Precision Backlash P0	arcmin	1	3~20	≤2	≤2	≤2	≤2	≤2
		2	15~200	≤4	≤4	≤4	≤4	≤4
Precision Backlash P1	arcmin	1	3~20	≤4	≤4	≤4	≤4	≤4
		2	15~200	≤6	≤6	≤6	≤6	≤6
Standard Backlash P2	arcmin	1	3~20	≤6	≤6	≤6	≤6	≤6
		2	15~200	≤8	≤8	≤8	≤8	≤8
Torsional Rigidity	Nm/arcmin	1,2	3~200	6	14	25	56	140
Max.Radial Force / F_{2rB}[2]	N	1,2	3~200	1300	3200	6750	9400	14500
Max.Axial Force / F_{2aB}[2]	N	1,2	3~200	700	1580	3300	4700	7200
Service Life	hr	1,2	3~200	21000 h				
Efficiency / η	%	1	3~20	≥93%				
		2	25~200	≥90%				
Weight	kg	1	3~20	1.5	6.4	13	24.5	51
		2	25~200	2.1	7.8	14.2	27.5	54
Operating Temperature	℃	1,2	3~200	(-15℃ ~ +90℃)				
Lubrication		1,2	3~200	(Synthetic Grease)				
Protection Class		1,2	3~200	IP65				
Mounting Position		1,2	3~200	(Any Direction)				
Noise Level (n1=3000rpm，No load)	dB(A)	1,2	3~200	≤65	≤68	≤68	≤70	≤72

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	EVL070	EVL090	EVL120	EVL145	EVL180
Moment of Inertia	$kg.cm^2$	1	3~10	0.35	2.25	6.84	23.4	68.9
			14~20	0.07	1.87	6.25	21.8	65.6
		2	15~100	0.09	0.35	2.25	6.84	23.4
			120~200	—	0.31	1.87	6.25	21.8

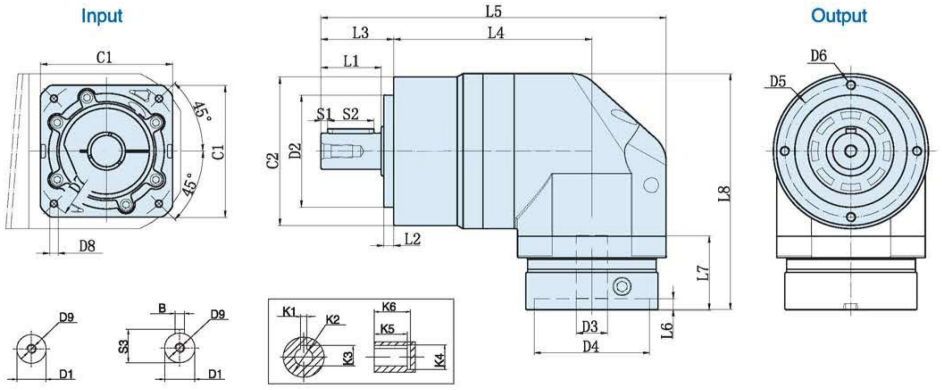
1. The Max. acceleration torque T2B=60% of T2NOT 2. When output speed is 100rpm, inertia acts on the output shaft center position.
3. 3-stage big ratios are not in the above table. There is shaft lengthening and enlarging design. Please tell sales person if you need it.

MODEL: EVL

1–Stage

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

Dimensions:



Output shaft type S1 Output shaft type S2 Output hole type S3

Unit:mm

Size	EVL070–L1	EVL090–L1	EVL120–L1	EVL145–L1	EVL180–L1
D1	ϕ16	ϕ22	ϕ32	ϕ40	ϕ55
D2	ϕ52	ϕ68	ϕ90	ϕ120	ϕ160
D3	ϕ14 (≤19)	ϕ19(11–24)	ϕ24(16–24)	ϕ24 (≤42)	ϕ35 (≤55)
D4	ϕ50 (50–70)	ϕ70 (50–110)	ϕ110 (50–110)	ϕ110 (≤180)	ϕ114.3 (≤180)
D5	ϕ62	ϕ80	ϕ108	ϕ140	ϕ184
D6	4–M5*10	4–M6*12	4–M8*16	4–M10*20L	4–M12*30L
D7	ϕ70 (70–130)	ϕ90 (70–145)	ϕ145 (90–155)	ϕ145 (≤215)	ϕ200 (≤300)
D8	(4–M4*10L)	(4–M5*12L)	(4–M8*20L)	(4–M12*30L)	(4–M12*30L)
D9	M5*0.8P*15L	M6*1.25P*19L	M12*1.75P*28L	M16*36L	M20*42L
L1	28.5	36.5	51	97	100
L2	5	6	9	79	84
L3	35	44	62	15	15
L4	88	120	140.5	172	294
L5	153	209	260	340	365
L6	(5)	(6.5)	(10)	(10)	(19)
L7	(33)	(45)	(64)	(84)	(81)
L8	(112.50)	(143)	(195.5)	(238)	(278)
C1	(□60)	(□80)	(□130)	(□130)	(□180)
C2	ϕ70	ϕ90	ϕ120	ϕ155	ϕ205
S1	3	4	5	5	6
S2	22	28	40	63	70
S3	18	24.5	35	43	59
B	5	6	10	12	16
K1	4	6	8	10	14
K2	ϕ11	ϕ22	ϕ28	ϕ38	ϕ50
K3	12.8	24.5	31.3	42	53.8
K4	ϕ16	ϕ32	ϕ38	ϕ48	ϕ60
K5	15	20	27	35	43
K6	18	24	32	40	50

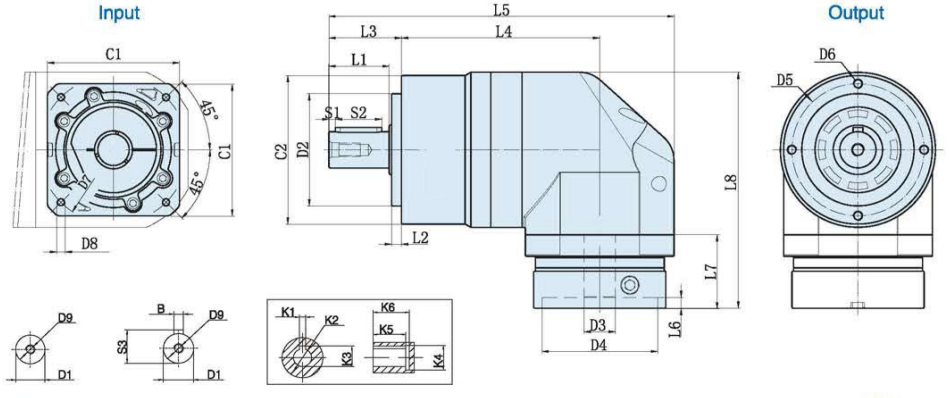
Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.
Note 2: The reducer output shaft size and length can be customized for customers.
Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

MODEL: EVL

2-Stage

Ratio: 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100

Dimensions:



Unit:mm

Size	EVL070-L2	EVL090-L2	EVL120-L2	EVL145-L2	EVL180-L2
D1	ϕ16	ϕ22	ϕ32	ϕ40	ϕ55
D2	ϕ52	ϕ68	ϕ90	ϕ120	ϕ160
D3	ϕ14 (≤19)	ϕ19(11-24)	ϕ24(16-24)	ϕ24 (≤42)	ϕ35 (≤55)
D4	ϕ50 (50-70)	ϕ70 (50-110)	ϕ110 (50-110)	ϕ110 (≤180)	ϕ114.3 (≤180)
D5	ϕ62	ϕ80	ϕ108	ϕ140	ϕ184
D6	4-M5*10	4-M6*12	4-M8*16	4-M10*20L	4-M12*30L
D7	ϕ70 (70-130)	ϕ90 (70-145)	ϕ145 (90-155)	ϕ145 (≤215)	ϕ200 (≤300)
D8	(4-M4*10L)	(4-M5*12L)	(4-M8*20L)	(4-M12*30L)	(4-M12*30L)
D9	M5*0.8P*15L	M6*1.25P*19L	M12*1.75P*28L	M16*36L	M20*42L
L1	28.5	36.5	51	97	100
L2	5	6	9	79	84
L3	35	44	62	15	15
L4	117	134.5	170.5	233	362.5
L5	182	208.5	277.5	401	433.5
L6	(5)	(6.5)	(10)	(10)	(19)
L7	(33)	(42.5)	(59)	(84)	(81)
L8	(112.50)	(134)	(180)	(238)	(278)
C1	(□60)	(□80)	(□130)	(□130)	(□180)
C2	ϕ70	ϕ90	ϕ120	ϕ155	ϕ205
S1	3	4	5	5	6
S2	22	28	40	63	70
S3	18	24.5	35	43	59
B	5	6	10	12	16
K1	4	6	8	10	14
K2	ϕ11	ϕ22	ϕ28	ϕ38	ϕ50
K3	12.8	24.5	31.3	42	53.8
K4	ϕ16	ϕ32	ϕ38	ϕ48	ϕ60
K5	15	20	27	35	43
K6	18	24	32	40	50

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.

High Precision Flange Output Planetray 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 & torqueThe 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

Reducer Model
VRT047, VRT064, VRT090, VRT110
VRT140, VRT200, VRT255

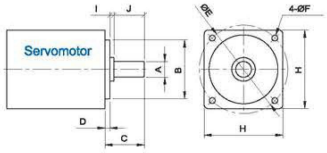
Output flange mode
S1: Standard flange face output
S2: Non standard flange face output

Motor Model
Motor Manufacturer & Model

Ratio
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

Backlash Grade
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:

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_{2NOT}[1]	Nm	1,2	4~100	3Times of Nominal Output Torque						
Rated Input Speed / n_{1N}	rpm	1,2	4~100	5000	5000	4000	4000	3000	3000	2000
Max.Input Speed / n_{1B}	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_{2rB}[2]	N	1,2	4~100	43	125	235	430	1300	3064	5900
Max.Axial Force / F_{2aB}[2]	N	1,2	4~100	990	1050	2850	2990	10590	16660	29430
Service Life	hr	1,2	4~100	22000h						
Efficiency / η	%	1	4~10	≥97%						
		2	20~100	≥94%						
Weight	kg	1	4~10	0.7	1.3	3.2	5.8	12.3	33	57.9
		2	20~100	1	1.5	4.1	7.6	16.8	38	72.6
Operating Temperature	℃	1,2	4~100	(-15℃ ~ +90℃)						
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

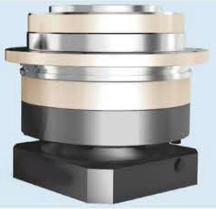
Specs	Unit	Stage	Ratio	VRT047	VRT064	VRT090	VRT110	VRT140	VRT200	VRT255
Moment of Inertia	$kg.cm^2$	1	4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
			5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
		2	20-40	0.03	0.03	0.13	0.47	2.71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

1. Max. reduction ratio(i=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。

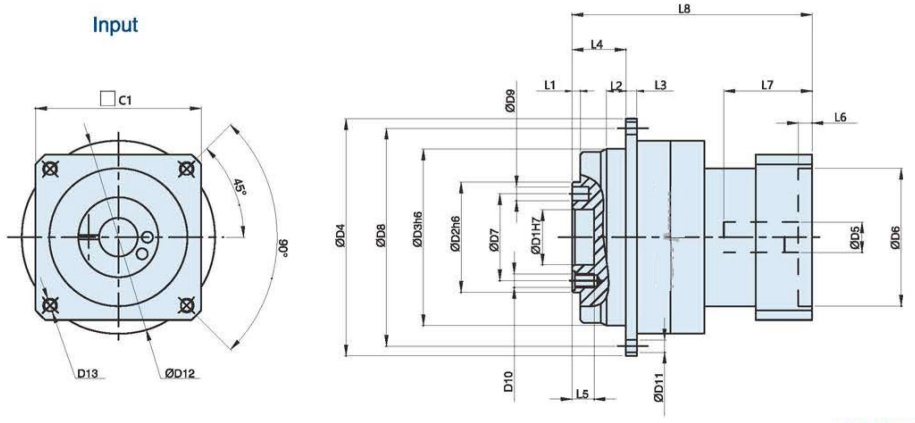
MODEL: VRT

1-Stage

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



Dimensions:



Unit:mm

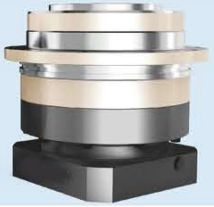
Size	VRT047-L1	VRT064-L1	VRT090-L1	VRT110-L1	VRT140-L1	VRT200-L1	PAD255-L1
D1	12	20	31.5	40	50	80	100
D2	28	40	63	80	100	160	180
D3	47	64	90	110	140	200	255
D4	72	86	118	145	179	247	300
D5	≤11/≤12	11(8 ~ 14)	19(14 ~ 22)	24(22 ~ 28)	24(24 ~ 48)	35(35 ~ 48)	48(48 ~ 55)
D6	30	30(30 ~ 50)	50(50 ~ 110)	110	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	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)	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

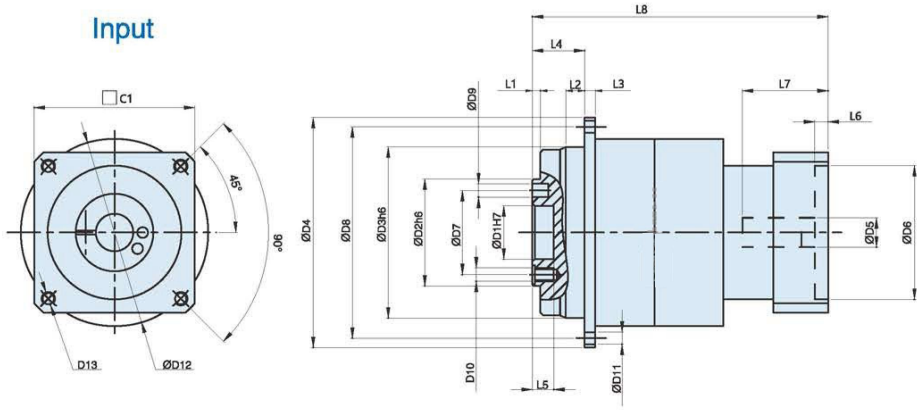
2-Stage

Ratio: 12, 15, 16, 20, 25, 28, 30, 35
40, 50, 70, 80, 100



Dimensions:

Input



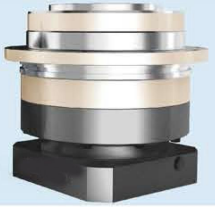
Unit:mm

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	280
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	66
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(90 ~ 130)	90(90 ~ 180)	180(130 ~ 220)	180(180 ~ 220)

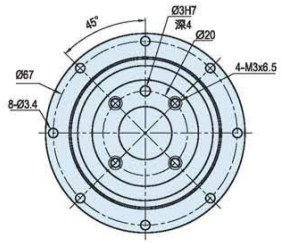
Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.
Note 2: The reducer output shaft size and length can be customized for customers.
Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

MODEL: VRT

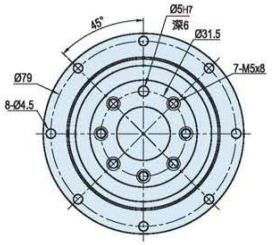
Output Dimensions:



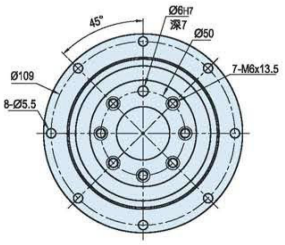
VRT047 OUTPUT



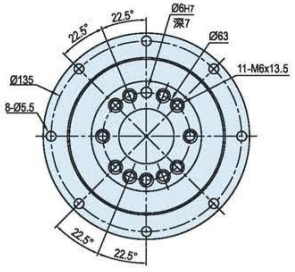
VRT064 OUTPUT



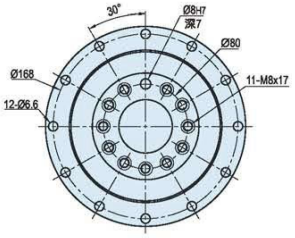
VRT090 OUTPUT



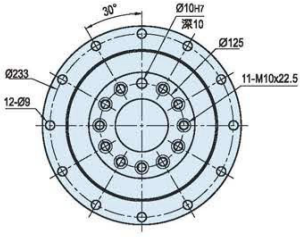
VRT110 OUTPUT



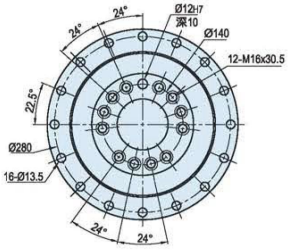
VRT140 OUTPUT



VRT200 OUTPUT



VRT255 OUTPUT



High Precision Flange Output Right Angle Planetary Gearbox

EVT

- 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 & torqueThe 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

EVT Type

EVT090 – 10 – S1 – P1 / Motor

Reducer Model
EVT047, EVT064, EVT090
EVT110, EVT140, EVT200
EVT255

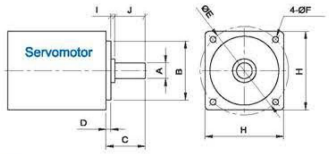
Output flange mode
S1: Standard flange face output
S2: Non standard flange face output

Motor Model
Motor Manufacturer & Model

Ratio
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

Backlash Grade
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:

Type — Model — Ratio — Output Shaft Keyway — Backlash Class — MOTOR NO.

EVT Reducer Specifications

Specs	Unit	Stage	Ratio	EVT047	EVT064	EVT090	EVT110	EVT140	EVT200	EVT255
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_{2NOT}[1]	Nm	1,2	4~100	3Times of Nominal Output Torque						
Rated Input Speed / n_{1N}	rpm	1,2	4~100	5000	5000	4000	4000	3000	3000	2000
Max.Input Speed / n_{1S}	rpm	1,2	4~100	10000	10000	8000	8000	6000	6000	4000
Micro Backlash P0	arcmin	1	4~10	≤2	≤2	≤2	≤2	≤2	≤2	≤2
		2	12~100	≤4	≤4	≤4	≤4	≤4	≤4	≤4
Precision Backlash P1	arcmin	1	4~10	≤4	≤4	≤4	≤4	≤4	≤4	≤4
		2	20~100	≤6	≤6	≤6	≤6	≤6	≤6	≤6
Standard Backlash P2	arcmin	1	4~10	≤6	≤6	≤6	≤6	≤6	≤6	≤6
		2	20~100	≤8	≤8	≤8	≤8	≤8	≤8	≤8
Torsional Rigidity	Nm/arcmin	1,2	4~100	8	13	30	80	150	450	1010
Max.Radial Force / F_{2rB}[2]	N	1,2	4~100	43	125	235	430	1300	3064	5900
Max.Axial Force / F_{2aB}[2]	N	1,2	4~100	990	1050	2850	2990	10590	16660	29430
Service Life	hr	1,2	4~100	22000h						
Efficiency / η	%	1	4~10	≥97%						
		2	20~100	≥94%						
Weight	kg	1	4~10	0.7	1.3	3.2	5.8	12.3	33	57.9
		2	20~100	1	1.5	4.1	7.6	16.8	38	72.6
Operating Temperature	℃	1,2	4~100	(–15℃ ~ +90℃)						
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	≤58	≤59	≤62	≤65	≤68	≤69	≤70

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	EVT047	EVT064	EVT090	EVT110	EVT140	EVT200	EVT255
Moment of Inertia	$kg.cm^2$	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. Ratio (i=Nin/Nout) . 2. 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.

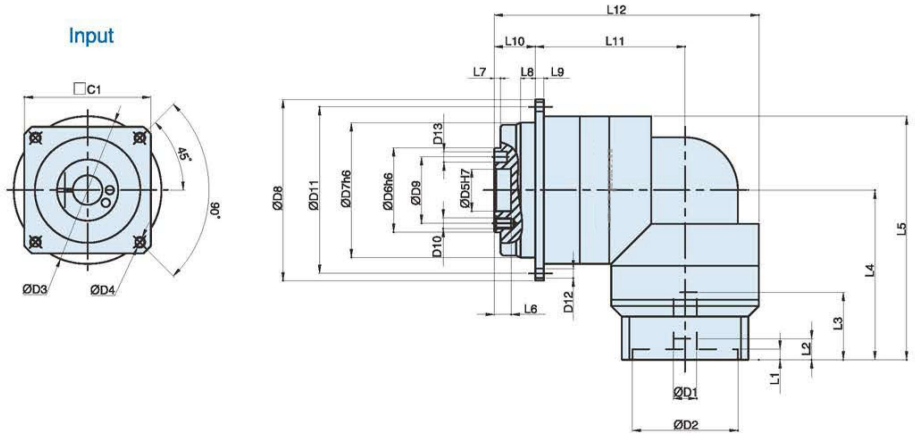
MODEL: EVT

1–Stage

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

Dimensions:

Input



Unit:mm

Size	EVT047–L1	EVT064–L1	EVT090–L1	EVT110–L1	EVT140–L1	EVT200–L1	EVT255–L1
D1	≤11/≤12	11(11 ~ 14)	19(19 ~ 24)	24(22 ~ 32)	32(24 ~ 35)	≤48	≤55
D2	30	50	70(70 ~ 110)	110(110 ~ 130)	110(110 ~ 114.3)	85	116
D3	46	70	90(90 ~ 145)	145(145 ~ 165)	145(145 ~ 200)	215	235
D4	M4	M4	M8	M8 ~ M10	M8 ~ M12	M12	M12
D5	12	20	31.5	40	50	80	100
D6	28	40	63	80	100	160	180
D7	47	64	90	110	140	200	255
D8	72	86	118	145	179	247	300
D9	20	31.5	50	63	80	125	140
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	67	79	109	135	168	233	280
D12	8–Ø3.4	8–Ø4.5	8–Ø5.5	8–Ø5.5	12–Ø6.6	12–Ø9	16–Ø13.5
D13	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
L1	3.5	5	12	10	8	6	6
L2	8	10	13	19	17	20	24
L3	30	32	42 ~ 47	57 ~ 60	67 ~ 77	85	116
L4	74	80.5	107 ~ 112	134 ~ 147.5	166.5 ~ 167	213.5	268.5
L5	104	115.5	152 ~ 157	195 ~ 208.5	217.5 ~ 241.5	316	398.5
L6	6.5	8	12	13	12	22.5	30.5
L7	3	3	6	6	6	8	12
L8	7	7	10	11	15	15	20
L9	4	4	7	8	10	12	18
L10	19.5	19.5	25	29	38	50	66
L11	60	71	102	130	142.5	189	216
L12	107.5	125.5	172	220	255.5	334.5	392
C1	48	60	90(90 ~ 130)	130 ~ 160	130(130 ~ 220)	190	220

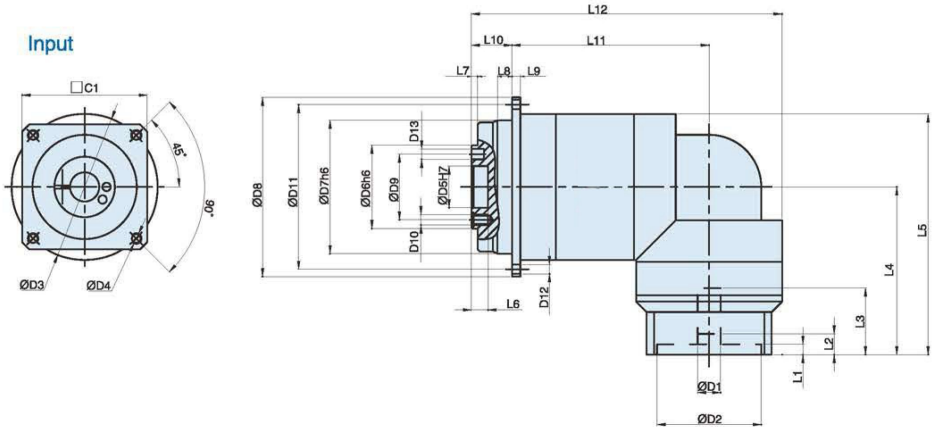
MODEL: EVT

2–Stage

Ratio: 12, 15, 16, 20, 25, 28, 30, 35
40, 50, 70, 80, 100

Dimensions:

Input



Unit:mm

Size	EVT47–L2	EVT064–L2	EVT090–L2	EVT110–L2	EVT140–L2	EVT200–L2	EVT255–L2
D1	≤11/≤12	11(11 ~ 14)	19(19 ~ 24)	24(22 ~ 32)	32(24 ~ 35)	≤48	≤55
D2	30	50	70(70 ~ 110)	110(110 ~ 130)	110(110 ~ 114.3)	85	116
D3	46	70	90(90 ~ 145)	145(145 ~ 165)	145(145 ~ 200)	215	235
D4	M4	M4	M8	M8 ~ M10	M8 ~ M12	M12	M12
D5	12	20	31.5	40	50	80	100
D6	28	40	63	80	100	160	180
D7	47	64	90	110	140	200	255
D8	72	86	118	145	179	247	300
D9	20	31.5	50	63	80	125	140
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	67	79	109	135	168	233	280
D12	8–Ø3.4	8–Ø4.5	8–Ø5.5	8–Ø5.5	12–Ø6.6	12–Ø9	16–Ø13.5
D13	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
L1	3.5	5	12	10	8	6	6
L2	8	10	13	19	17	20	24
L3	30	32	42 ~ 47	57 ~ 60	67 ~ 77	85	116
L4	74	80.5	107 ~ 112	134 ~ 147.5	166.5 ~ 167	213.5	268.5
L5	103	115.5	152 ~ 157	195 ~ 208.5	217.5 ~ 241.5	269.5	340
L6	4	8	12	13	12	22.5	30.5
L7	3	3	6	6	6	8	12
L8	7	7	10	11	15	15	20
L9	4	4	7	8	10	12	18
L10	19.5	19.5	30	29	38	50	66
L11	79	94.5	117	163.5	187	243	270
L12	122	149	187	253.5	300	382	403
C1	48	60	90(90 ~ 130)	130 ~ 160	130(130 ~ 220)	190	220

Safety Precautions

Cautions for storage

Whenever temporarily keeping the product, keep the following directions:

1.Keep in a clean and dry place.
2.Whenever storing outdoors or in a humid place, put in a box so that it does not directly contact rain or external air and cover with a vinyl sheet (Take a measure to prevent rust.)

Cautions for operation

When the reducer is delivered to you……

When the product delivered, please con rm that you received the exact same model you have ordered.
Please wipe out the input and output shaft of the reducer which is covered by anti-corrosive oil.
※Please remove the rubber cap on the input shaft before you wipe the shafts.
※Lubricant(grease) is already lled in the reducer. It is available as it is.

Fixation & installation

Avoid use in a place where rain or water drops directly.
In case of use outdoors or in a place where dust and water drops, consult in advance.
Install at 0℃~40℃ of surrounding temperature.
In case of use at temperature out of the above-mentioned range, contact the headquarters and consult on this.
Firmly x with a bolt onto a solid stand without vibration.
Install in consideration of convenience in repair and inspection.

Cautions prior to starting the operation

Reducer can be used soon after arrival, since it has already been lled out with lubrication.
At initial operation, check the rotating direction of the output shaft and then gradually apply load.

Cautions during operation

Avoid overload. Ensure that input speed shall not be the number of revolutions beyond the speci cation.
In the following cases, stop the operation and check the following points:
- If temperature sharply increases
- If an abnormal noise appears sharply
- If the number of revolutions becomes unstable sharply

Regulations

The scope of warranty only includes the product.
The following costs and damages are not covered by the warranty.
1) Shipping cost of this product.
2) The cost of removing, installing or other incidental construction of the product from other devices after connection or installation.
3) Due to the failure of this product, indirect damage caused to the user due to loss of use opportunities or business interruption.
4) All other derived or consequential damages.

Installation

Mounting procedure to the motor

1 Wipe off anti-rust agent and oil on the motor shaft.

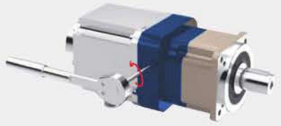
2 Remove the plug

3 Turn the input shaft until the cap screw is seen. Make sure the cap screw is loosened.

In case the bushing has been attached, Please fix it to the reducer as the drawing below.

4 Please place reducer vertically on the flat surface so the motor mounting part faces up. Carefully insert the motor shaft into the input shaft. (It should be inserted smoothly) Make sure the motor flange is perfectly fit to the reducer's flange. Tighten the motor installing bolts to the proper torque.(See table1)

5 Tighten the clamping bolt of the input shaft with torque wrench to the proper torque.(See table1)



6 Reinstall the plug. The procedure is done.

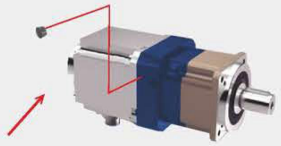


Table1

Bolt size			Clamping bolt	
	Nm	kgfm	Nm	kgfm
M3	1.1	0.11	1.9	0.18
M4	2.5	0.26	4.3	0.44
M5	5.1	0.52	8.7	0.89
M6	8.7	0.89	15	1.5
M8	21	2.1	36	3.7
M10	42	4.3	71	7.2
M12	72	7.3	125	13
M16	134	14	–	–

Table 2

Bolt size	Tightening torque	
	Nm	kgfm
M3	1.9	0.18
M4	4.3	0.44
M5	8.7	0.89
M6	15	1.5
M8	36	3.7
M10	71	7.2
M12	125	13
M16	310	32
M20	603	62

※Recommended bolt：Strength 12.9