

Високоточні планетарні редуктори для крокових та серводвигунів

ПІД ЗАМОВЛЕННЯ з терміном поставки 1 місяць

Сфери застосування:

- обладнання для обробки на верстатах з ЧПК;
- військове та аерокосмічне обладнання;
- виробництво напівпровідникових пластин;
- обробку покриттів та плівок;
- високошвидкісне складання електроніки;
- лиття під тиском, упаковку;
- обладнання для плазмового різання з ЧПК;
- автоматизоване пакувальне обладнання, друкарські машини

ПІДБІР ТА ТЕХНІЧНА КОНСУЛЬТАЦІЯ: +38 096 848 62 76

PRECISION PLANETARY GEARBOX

VRB

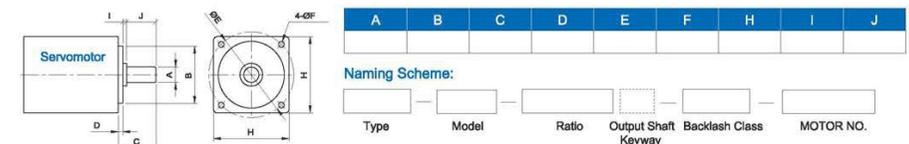


- **1. Quiet operation**
Helical gears are used to achieve smooth and quiet operation.
- **2. High precision**
The backlash is less than 3 arcmin and the positioning is accurate.
- **3. High rigidity & torque**
The use of integral ball bearings greatly improves the rigidity and torque.
- **4. Methods 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

VRB Type					
VRB090	-	10	-	S1	- P1 / Motor
Reducer Model VRB042, VRB060, VRB090, VRB115 VRB142, VRB180, VRB220		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 :



VRB Reducer Specifications

Specs	Unit	Stage	Ratio	VRB042	VRB060	VRB090	VRB115	VRB142	VRB180	VRB220
Rated Output Torque / T2N	Nm	1	3	20	45	130	230	450	900	1500
			4	19	50	140	290	542	1050	1700
			5	22	60	160	330	650	1200	2000
			6	20	55	150	310	600	1100	1900
			7	19	50	140	300	550	1100	1800
			8	17	45	120	260	500	1000	1600
			9	14	40	100	230	450	900	1500
			10	14	40	100	208	342	588	1140
			15	20	45	130	230	450	900	1550
			20	19	50	140	290	542	1050	1700
		25	22	60	160	330	650	1200	2000	
		30	20	55	150	310	600	1100	1900	
		35	19	60	160	330	550	1100	1800	
		40	17	45	120	260	500	1000	1600	
		45	14	40	100	230	450	900	1500	
		50	22	60	160	330	650	1200	2000	
		60	20	55	150	310	600	1100	1900	
		70	19	50	140	300	550	1100	1800	
		80	17	45	120	260	500	1000	1600	
		90	14	40	100	230	450	900	1500	
100	14	40	100	208	342	588	1140			
Max. Output Torque / T2NOT ¹	Nm	1,2	3-100	3Times of Nominal Output Torque						
Rated Input Speed / Π _{IN}	rpm	1,2	3-100	5000	5000	4000	4000	3000	3000	2000
Max. Input Speed / Π _{IN}	rpm	1,2	3-100	10000	10000	8000	8000	6000	6000	4000
Micro Backlash P0	arcmin	1	3-10	≤1	≤1	≤1	≤1	≤1	≤1	≤1
		2	12-100	≤3	≤3	≤3	≤3	≤3	≤3	≤3
Precision Backlash P1	arcmin	1	3-10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
		2	12-100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Precision Backlash P2	arcmin	1	3-10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
		2	12-100	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arcmin	1,2	3-100	3	7	14	25	50	145	225
Max. Radial Force / F _{2R} ²	N	1,2	3-100	780	1530	3250	6700	9400	14500	50000
Max. Axial Force / F _{2A} ²	N	1,2	3-100	390	765	1625	3350	4700	7250	25000
Service Life	hr	1,2	3-100	20000h						
		1	3-10	≥97%						
Efficiency / η	%	2	15-100	≥94%						
Weight	kg	1	3-10	0.5	1.3	3.3	7.8	15	28	52
		2	15-100	0.8	1.48	3.9	9.6	18.9	33	66
Operating Temperature	°C	1,2	3-100	(-15°C ~ +90°C)						
Lubrication		1,2	3-100	(Synthetic Grease)						
Protection Class		1,2	3-100	IP65						
Mounting Position		1,2	3-100	(Any Direction)						
Noise Level (n1=3000rpm, No load)	dB(A)	1,2	3-100	≤56	≤58	≤60	≤63	≤65	≤67	≤70

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	VRB042	VRB060	VRB090	VRB115	VRB142	VRB180	VRB220
Rotary Inertia	kg.cm ²	1	3	0.03	0.16	0.61	3.25	9.21	28.98	69.61
			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
			6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
			9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
			10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
			12-40	0.03	0.13	0.47	2.71	7.42	23.29	
			50-100	0.03	0.13	0.44	2.57	7.03	22.51	

1. Ratio (i=Nin/Nout) 2. When output speed is 100rpm, acting on the output shaft center position
 3. The Max. acceleration torque T2B=60% of T2NOT, continuous operation, service life is 10000hrs

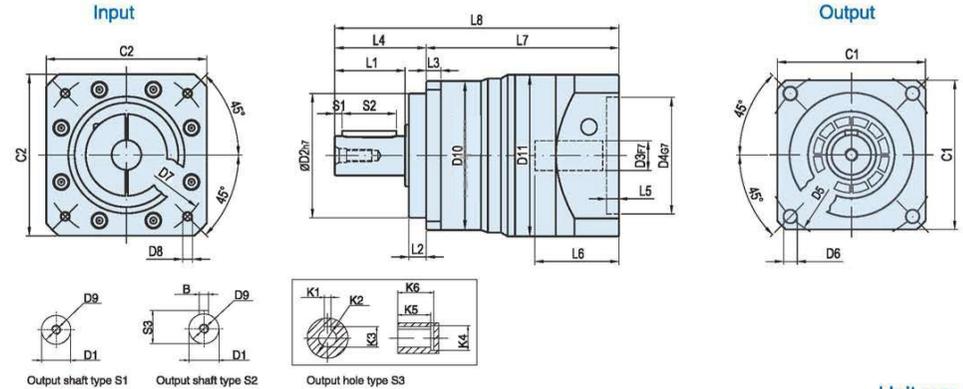
MODEL: VRB

1-Stage

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



Dimensions:



Unit:mm

Size	VRB042-L1	VRB060-L1	VRB090-L1	VRB115-L1	VRB142-L1	VRB180-L1	VRB220-L1
D1	φ13	φ16	φ22	φ32	φ40	φ55	φ75
D2	φ35	φ50	φ80	φ110	φ130	φ160	φ180
D3	φ8 (φ6.35-11)	φ14 (φ11-19)	φ19 (φ16-24)	φ22 (φ19-35)	φ24 (φ22-35)	φ35 (φ35-42)	φ42 (φ35-55)
D4	φ30 (φ30-50)	φ50 (φ50-φ70)	φ70 (φ70-φ110)	φ110 (φ114.3)	φ110 (φ114.3)	φ114.3 (φ114.3-200)	φ180 (φ114.3-200)
D5	φ50	φ70	φ100	φ130	φ165	φ215	φ250
D6	4-φ3.4	4-φ5.5	4-φ7	4-φ9	4-φ11	4-φ13	4-φ17
D7	φ46 (φ45-70)	φ70 (φ70-φ90)	φ90 (φ90-145)	φ145 (φ145-200)	φ145 (φ145-200)	φ200 (φ200-235)	φ215 (φ200-235)
D8	4-M4(M3-M5)	4-M5 (M4-M6)	4-M6 (M5-M8)	4-M8 (M8-M12)	4-M8 (M8-M12)	4-M12	4-M12
D9	M4X0.7P	M5X0.8P	M8X1.25P	M12X1.75P	M16X2P	M20X2.5P	M20X2.5P
D10	φ42	φ60	φ87	φ114.5	φ142	φ180	φ218
D11	φ46	φ65	φ90	φ118	φ150	φ184	φ225.5
L1	19.5	28.5	36.5	51	79	82	105
L2	5.5	7	10	12	15	20	30
L3	4	6	8	10	12	15	20
L4	26	37	48	65	97	105	138
L5	5	5	7 (7-8)	6 (6-11)	8 (8-11)	7 (7-10)	8 (8-15)
L6	27.5 (≤32)	34 (≤44)	44 (≤60)	64.5 (≤81.5)	72.5 (≤82)	85 (≤120)	109 (≤119)
L7	65.5 (65.5-70)	78 (78-88)	98 (98-114)	135 (135-153)	154.5 (154.5-164)	179 (179-214)	220 (220-230)
L8	91.5 (91.5-96)	115 (115-125)	146 (146-162)	201 (201-218)	251.5 (251.5-261)	284 (284-319)	358 (358-368)
C1	42	60	90	115	142	180	220
C2	46(46-60)	65(65-80)	90 (90-130)	130 (130-180)	130 (130-180)	180 (180-220)	200 (200-220)
S1	3	3	4	5	6	7	9
S2	14	22	28	40	65	70	90
S3	15	18	24.5	35	43	59	79.5
B	5	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.

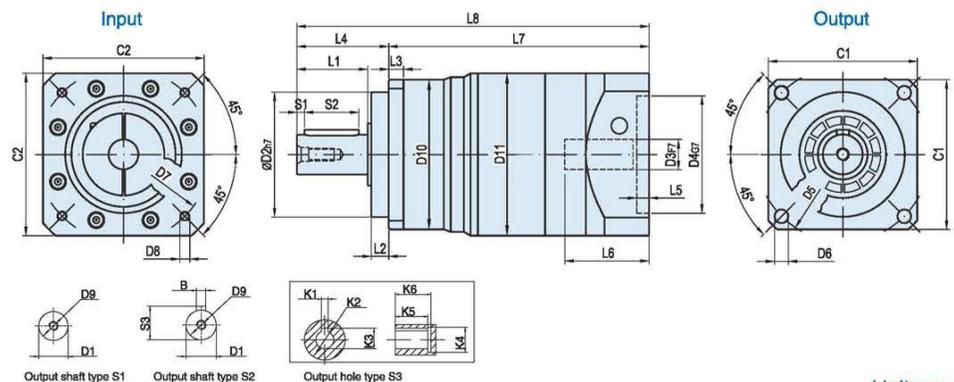
MODEL: VRB

2-Stage

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



Dimensions:



Unit:mm

Size	VRB042-L2	VRB060-L2	VRB090-L2	VRB115-L2	VRB142-L2	VRB180-L2	VRB220-L2
D1	φ13	φ16	φ22	φ32	φ40	φ55	φ75
D2	φ35	φ50	φ80	φ110	φ130	φ160	φ180
D3	φ8 (φ8.35-8)	φ14 (φ11-14)	φ19 (φ11-19)	φ22 (φ16-24)	φ24 (φ19-35)	φ35 (φ22-35)	φ42 (φ35-42)
D4	φ30 (φ30-38.1)	φ50	φ70 (φ50-φ80)	φ110 (φ70-110)	φ110 (φ114.3)	φ114.3 (φ110-114.3)	φ180 (φ114.3-200)
D5	φ50	φ70	φ100	φ130	φ165	φ215	φ250
D6	4-φ3.4	4-φ5.5	4-φ7	4-φ9	4-φ11	4-φ13	4-φ17
D7	φ46 (φ45-66.87)	φ70	φ90 (φ70-100)	φ145 (φ90-145)	φ145 (φ145-200)	φ200 (φ145-200)	φ215 (φ200-235)
D8	4-M4(M3)	4-M5 (M4)	4-M6 (M4-M6)	4-M8 (M5-M8)	4-M8 (M8-M12)	4-M12 (M8-M12)	4-M12
D9	M4X0.7P	M5X0.6P	M8X1.25P	M12X1.75P	M16X2P	M20X2.5P	M20X2.5P
D10	φ42	φ60	φ87	φ114.5	φ142	φ180	φ218
D11	φ46	φ65	φ90	φ118	φ150	φ184	φ225.5
L1	19.5	28.5	36.5	51	79	82	105
L2	5.5	7	10	12	15	20	30
L3	4	6	8	10	12	15	20
L4	26	37	48	65	97	105	138
L5	5	5	5	8 (7-8)	11 (6-11)	8 (8-11)	8 (7-10)
L6	27.5	34	34 (≤44)	44 (≤60)	64.5 (≤81.5)	72.5 (≤82)	85 (≤120)
L7	86	105	124.5 (114.5-124.5)	165.5 (149.5-165.5)	206 (189-206)	235 (225.5-235)	269 (264-299)
L8	112	142	172.5 (162.5-172.5)	230.5 (214.5-230.5)	303 (286-303)	340 (330.5-340)	407 (402-437)
C1	42	60	90	115	142	180	220
C2	46 (46-57)	65	65 (65-86)	90 (90-130)	130 (130-180)	150 (150-180)	200 (180-220)
S1	3	3	4	5	5	6	7
S2	14	22	28	40	65	70	90
S3	15	18	24.5	35	43	59	79.5
B	5	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

EVB



- 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

EVB Type

EVB090 - 10 - S1 - P1 / Motor

Reducer Model

EVB042, EVB060, EVB090, EVB115
EVB142, EVB180, EVB220

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

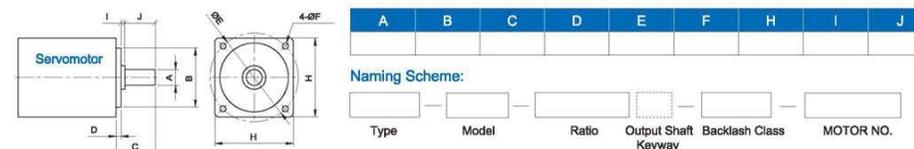
Ratio

1-stage: 3, 4, 5, 6, 7, 8, 9, 10, 14, 16, 20
2-stage: 15, 20, 25, 30, 35, 40, 50, 70,
80, 100, 120, 140, 160, 180, 200

Backlash Grade

P0: High precision backlash
P1: Precision backlash
P2: Standard backlash

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



Reducer Specifications

Specs	Unit	Stage	Ratio	EVB042	EVB060	EVB090	EVB115	EVB142	EVB180	EVB220
Rated Output Torque / T2N	Nm	1	3	20	45	130	230	450	900	1500
			4	19	50	140	290	542	1050	1700
			5	22	60	160	330	650	1200	2000
			6	20	55	150	310	600	1100	1900
			7	19	50	140	300	550	1100	1800
			8	17	45	120	260	500	1000	1600
			9	14	40	100	230	450	900	1500
			10	14	40	100	208	342	588	1140
			14	19	50	140	230	450	900	1550
			20	14	40	100	290	542	1050	1700
		2	15	20	55	130	230	450	900	1140
			20	20	55	150	310	600	1100	1900
			25	22	60	160	330	550	1100	1800
			30	20	45	120	260	500	1000	1600
			35	19	40	100	230	450	900	1500
			40	17	40	100	330	650	1200	2000
			50	22	50	140	300	550	1100	1800
			70	19	45	120	260	500	1000	1600
			80	17	40	100	230	450	900	1500
			100	14	40	100	208	342	588	1140
120	—	—	128	305	495	1095	1895			
140	—	—	128	295	525	1095	1795			
160	—	—	118	255	515	995	1595			
180	—	—	98	225	445	895	1495			
200	—	—	98	225	445	895	1495			
Max.Output Torque / T2NOT ¹	Nm	1,2	3-200	3Times of Nominal Output Torque						
Rated Input Speed / П1N	rpm	1,2	3-200	3000	3000	3000	3000	2500	2000	2000
Max.Input Speed / П1n	rpm	1,2	3-200	6000	6000	6000	5500	4500	4500	4000
Precision Backlash P0	arcmin	1	3-20	≤2	≤2	≤2	≤2	≤2	≤2	≤2
		2	15-200	≤4	≤4	≤4	≤4	≤4	≤4	≤4
Precision Backlash P1	arcmin	1	3-20	≤4	≤4	≤4	≤4	≤4	≤4	≤4
		2	15-200	≤6	≤6	≤6	≤6	≤6	≤6	≤6
Standard Backlash P2	arcmin	1	3-20	≤6	≤6	≤6	≤6	≤6	≤6	≤6
		2	15-200	≤8	≤8	≤8	≤8	≤8	≤8	≤8
Torsional Rigidity	Nm/arcmin	1,2	3-200	3	6	14	25	56	140	220
Max.Radial Force / F2R ²	N	1,2	3-200	780	1300	3200	6750	9400	14500	50000
Max.Axial Force / F2A1 ²	N	1,2	3-200	330	700	1580	3300	4700	7200	28000
Service Life	hr	1,2	3-200	21000 h						
Efficiency / η	%	1	3-20	≥93%						
		2	25-200	≥90%						
Weight	kg	1	3-20	0.9	1.5	6.4	13	24.5	51	83
		2	25-200	1.2	2.1	7.8	14.2	27.5	54	95
Operating Temperature	°C	1,2	3-200	(-15°C ~ +90°C)						
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	≤65	≤68	≤68	≤70	≤72	≤74

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	EVB042	EVB060	EVB090	EVB115	EVB142	EVB180	EVB220
Moment of Inertia	kg.cm ²	1	3-10	0.09	0.35	2.25	6.84	23.4	68.9	135.4
			14-20	0.03	0.07	1.87	6.25	21.8	65.6	119.8
		2	15-100	0.09	0.09	0.35	2.25	6.84	23.4	68.9
			120-200	—	—	0.31	1.87	6.25	21.8	65.6

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.

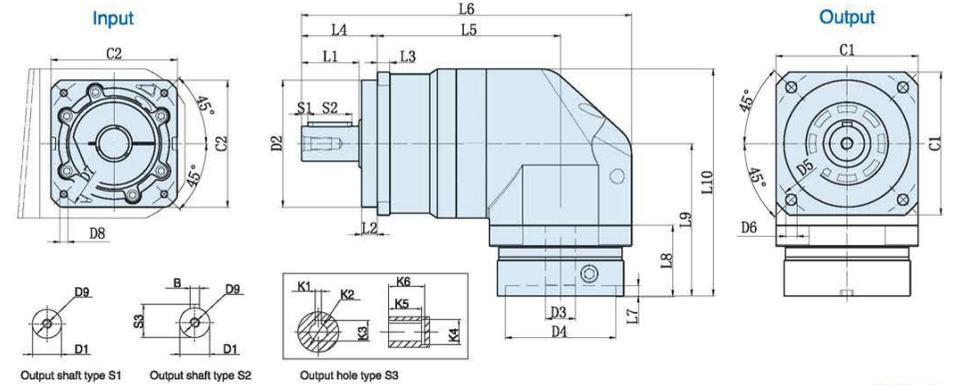
MODEL: EVB

1-Stage

Ratio: 3, 4, 5, 6, 7, 8, 9, 10, 14, 16, 20



Dimensions:



Unit:mm

Size	EVB042-L1	EVB060-L1	EVB090-L1	EVB115-L1	EVB142-L1	EVB180-L1	EVB220-L1
D1	φ13	φ16	φ22	φ32	φ40	φ55	φ75
D2	φ35	φ50	φ80	φ110	φ130	φ160	φ180
D3	φ8(≤11)	φ14(≤14)	φ19(≤24)	φ24(≤32)	φ35(≤42)	φ38(≤50)	φ55(≤55)
D4	φ30(30-50)	φ50(50-70)	φ70(50-110)	φ110(50-130)	φ114.3(95-180)	φ180(95-180)	φ215(180-255)
D5	φ50	φ70	φ100	φ130	φ165	φ215	φ250
D6	4-φ3.4	4-φ5.5	4-φ7	4-φ9	4-φ11	4-φ13	4-φ17
D7	φ46(22-70)	φ70(70-130)	φ90(70-145)	φ145(70-145)	φ200(90-215)	φ200(90-300)	φ235(200-300)
D8	(4-M3X8L)	(4-M4*8L)	(4-M6*10L)	(4-M8*20L)	(4-M12X30L)	(4-M12X30L)	(4-M12X30L)
D9	M4X0.7P	M5*0.8P*18L	M6*1.25P*19L	M12*1.75P*28L	M16X2.0P	M20X2.5P	M20X2.5P
L1	19	28.5	36.5	51	79	82	105
L2	5.5	7	10	12	15	20	30
L3	4	6	8	10	12	15	20
L4	26	37	48	65	97	105	138
L5	96	86	116	137.5	255	289	346
L6	(122)	153	209	260	(352)	(394)	(484)
L7	(3.5)	(5)	(6.5)	(10)	(14)	(15)	(7)
L8	(30)	(33)	(45)	(64)	(81)	(85)	(85)
L9	(69.5)	(77.5)	(96)	(135.5)	(165)	(213.5)	(268.5)
L10	(95.5)	(111.75)	(143)	(195)	(230)	(303.5)	(378.5)
C1	□42	□60	□90	□115	□142	□180	□220
C2	(□42)	(□60)	(□80)	(□130)	(□142)	(□180)	(□220)
S1	2	3	4	5	5	5	7
S2	16	22	28	40	65	70	90
S3	15	18	24.5	35	43	59	79
B	5	5	6	10	12	16	20
K1	—	3	6	8	10	14	16
K2	—	φ8	φ18	φ28	φ38	φ50	φ60
K3	—	9.2	21	31.3	42	53.8	64.4
K4	—	φ11	φ24	φ38	φ48	φ60	φ72
K5	—	16	30	27	35	43	60
K6	—	18	35	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.

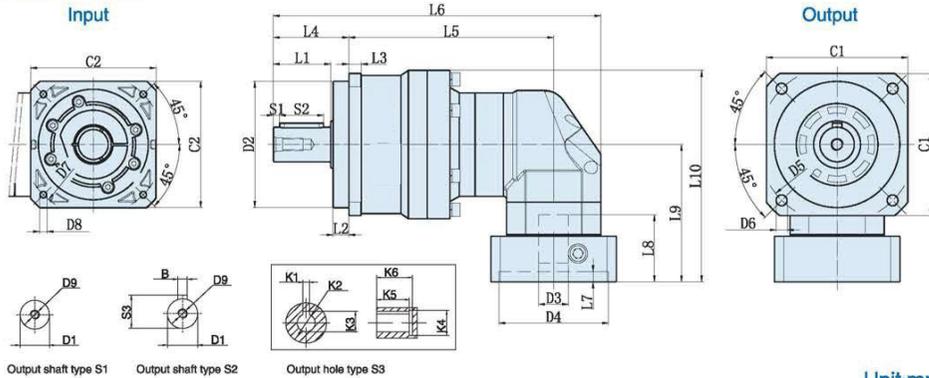
MODEL: EVB

2-Stage

Ratio: 15, 20, 25, 30, 35, 40, 50, 70, 80
100, 120, 140, 160, 180, 200



Dimensions:



Unit:mm

Size	EVB042-L2	EVB060-L2	EVB090-L2	EVB115-L2	EVB142-L2	EVB180-L2	EVB220-L2
D1	φ 13	φ 16	φ 22	φ 32	φ 40	φ 55	φ 75
D2	φ 35	φ 50	φ 80	φ 110	φ 130	φ 160	φ 180
D3	φ 8(≤11)	φ 14(≤14)	φ 19(≤24)	φ 24(≤32)	φ 35(≤42)	φ 38(≤50)	φ 55(≤55)
D4	φ 30(30-50)	φ 50 (50-70)	φ 70 (50-110)	φ 110 (50-130)	φ 114.3(95-180)	φ 180(95-180)	φ 215(180-255)
D5	φ 50	φ 70	φ 100	φ 130	φ 165	φ 215	φ 250
D6	4-φ 3.4	4-φ 5.5	4-φ 7	4-φ 9	4-φ 11	4-φ 13	4-φ 17
D7	φ 46(22-70)	φ 70 (70-130)	φ 90 (70-145)	φ 145 (70-145)	φ 200(90-215)	φ 200(90-300)	φ 235(200-300)
D8	(4-M3X8L)	(4-M4*8L)	(4-M6*10L)	(4-M8*20L)	(4-M12X30L)	(4-M12X30L)	(4-M12X30L)
D9	M4X0.7P	M5*0.8P*18L	M6*1.25P*19L	M12*1.75P*28L	M16X2.0P	M20X2.5P	M20X2.5P
L1	19	28.5	36.5	51	79	82	105
L2	5.5	7	10	12	15	20	30
L3	4	6	8	10	12	15	20
L4	26	37	48	65	97	105	138
L5	113	115	130.5	167.5	282	322	383
L6	139	182	208.5	277.5	(378)	(427)	(521)
L7	(3.5)	(5)	(6.5)	(10)	(14)	(15)	(7)
L8	(30)	(33)	(42.5)	(59)	(81)	(85)	(85)
L9	(69.5)	(77.5)	(87)	(120)	(165)	(213.5)	(268.5)
L10	(90.5)	(111.75)	(134)	(179.5)	(236)	(303.5)	(378.5)
C1	□42	□60	□90	□115	□142	□180	□220
C2	(□42)	(□60)	(□80)	(□130)	(□142)	(□180)	(□220)
S1	2	3	4	5	5	5	7
S2	16	22	28	40	65	70	90
S3	15	18	24.5	35	43	59	79
B	5	5	6	10	12	16	20
K1	-	3	6	8	10	14	16
K2	-	φ 8	φ 18	φ 28	φ 38	φ 50	φ 60
K3	-	9.2	21	31.3	42	53.8	64.4
K4	-	φ 11	φ 24	φ 38	φ 48	φ 60	φ 72
K5	-	20	30	27	35	43	60
K6	-	24	35	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

VRL



- 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

VRL Type

VRL090 - 10 - S1 - P1 / Motor

Reducer Model

VRL050, VRL070, VRL090, VRL120
VRL155, VRL205, VRL235

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

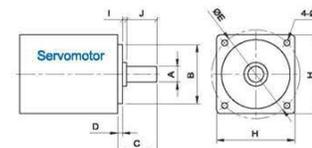
Ratio

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

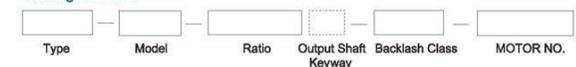
P0: High precision backlash
P1: Precision backlash
P2: Standard backlash

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



A	B	C	D	E	F	H	I	J

Naming Scheme:



VRL Reducer Specifications

Specs	Unit	Stage	Ratio	VRL050	VRL070	VRL090	VRL120	VRL155	VRL205	VRL235	
Rated Output Torque / T2N	Nm	1	3	20	45	130	230	450	900	1500	
			4	19	50	140	290	542	1050	1700	
			5	22	60	160	330	650	1200	2000	
			6	20	55	150	310	600	1100	1900	
			7	19	50	140	300	550	1100	1800	
			8	17	45	120	260	500	1000	1600	
			9	14	40	100	230	450	900	1500	
			10	14	40	100	208	342	588	1140	
			15	20	45	130	230	450	900	1550	
			20	19	50	140	290	542	1050	1700	
		25	22	60	160	330	650	1200	2000		
		30	20	55	150	310	600	1100	1900		
		35	19	60	160	330	650	1200	2000		
		40	17	45	120	260	500	1000	1600		
		45	14	40	100	230	450	900	1500		
		50	22	60	160	330	650	1200	2000		
		60	20	55	150	310	600	1100	1900		
		70	19	50	140	300	550	1100	1800		
		80	17	45	120	260	500	1000	1600		
		90	14	40	100	230	450	900	1500		
100	14	40	100	208	342	588	1140				
Max.Output Torque / T2NOT ¹	Nm	1,2	3Times of Nominal Output Torque								
Rated Input Speed / Π _{IN}	rpm	1,2	3~100	5000	5000	4000	3000	3000	3000	2000	
Max.Input Speed / Π _{IN}	rpm	1,2	3~100	10000	10000	8000	8000	6000	6000	4000	
Micro Backlash P0	arcmin	1	3~10	≤1	≤1	≤1	≤1	≤1	≤1	≤1	
		2	15~100	≤3	≤3	≤3	≤3	≤3	≤3	≤3	
Precision Backlash P1	arcmin	1	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3	
		2	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5	
Precision Backlash P2	arcmin	1	3~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5	
		2	15~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7	
Torsional Rigidity	Nm/arcmin	1,2	3~100	3	7	14	25	50	145	225	
Max.Radial Force / F _{rad} ²	N	1,2	3~100	680	1260	2880	6000	8200	12800	27800	
Max.Axial Force / F _{axial} ²	N	1,2	3~100	370	760	1580	3360	4660	7250	18500	
Service Life	hr	1,2	3~100	20000h							
Efficiency / η	%	1	3~10	≥97%							
		2	15~100	≥94%							
Weight	kg	1	3~10	0.5	1.2	3.5	7.8	14.5	30	50	
		2	15~100	0.8	1.4	4.1	9	17.5	33	63	
Operating Temperature	°C	1,2	3~100	(-15°C ~ +90°C)							
Lubrication		1,2	3~100	(Synthetic Grease)							
Protection Class		1,2	3~100	IP65							
Mounting Position		1,2	3~100	(Any Direction)							
Noise Level (n1=3000rpm, No load)	dB(A)	1,2	3~100	≤56	≤58	≤60	≤63	≤65	≤67	≤70	

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	VRL050	VRL070	VRL090	VRL120	VRL155	VRL205	VRL235
Moment of Inertia	kg.cm ²	1	3	0.03	0.16	0.61	3.25	9.21	28.98	69.61
			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
			6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
			9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
			10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
			12~40	0.03	0.13	0.13	0.47	2.71	7.42	23.29
			50~100	0.03	0.13	0.13	0.44	2.57	7.03	22.51
		2	3	0.03	0.16	0.61	3.25	9.21	28.98	69.61
			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
			6	0.03	0.13	0.45	2.65	7.25	22.75	51.72

1. Ratio (i=Nin/Nout) 2. Output revolutions 100rpm, acting on the output shaft center position.
3. The Max. acceleration torque T2B=60% of T2NOT, continuous operation, service life is 10000hrs.

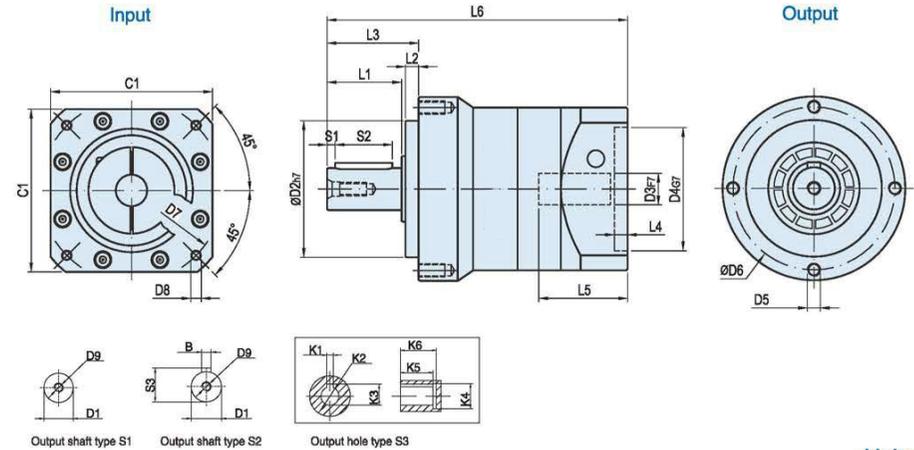
MODEL: VRL

1-Stage

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



Dimensions:



Unit:mm

Size	VRL070-L1	VRL090-L1	VRL120-L1	VRL155-L1	VRL205-L1	VRL235-L1
D1	φ16	φ22	φ32	φ40	φ55	φ75
D2	φ52	φ68	φ90	φ120	φ160	φ180
D3	φ14 (φ11-14)	φ19 (φ16-24)	φ22 (φ19-35)	φ24 (φ22-35)	φ35 (φ35-φ42)	φ42 (φ35-55)
D4	φ50 (φ50-70)	φ70 (φ70-φ110)	φ110 (φ114.3)	φ110 (φ114.3)	φ114.3 (φ114.3-200)	φ180 (φ114.3-200)
D5	4-M5X10L	4-M6X12L	4-M8X16L	4-M10X20L	4-M12X22L	4-M16X28L
D6	φ82	φ80	φ108	φ140	φ184	φ210
D7	φ70 (φ70-90)	φ90 (φ90-145)	φ145 (φ145-200)	φ145 (φ145-200)	φ200 (φ200-235)	φ215 (φ200-235)
D8	4-M5 (M4-M6)	4-M6 (M5-M8)	4-M8 (M8-M12)	4-M8 (M8-M12)	4-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	7-8	8-11	8-11	7-10	8-15
L5	34 (≤44)	44 (≤60)	64.5 (≤81.5)	72.5 (≤82)	85 (≤120)	109 (≤119)
L6	115 (115-125)	146 (146-162)	201 (201-218)	251.5 (251.5-261)	284 (284-319)	358 (358-368)
C1	65 (65-80)	90 (90-130)	130 (130-180)	150 (150-180)	180 (180-220)	200 (200-220)
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.