

NEXA
Precision in Motion

CATALOGUE



2027

PRECISION PLANETARY GEARBOX

01

NRB

Features

Quiet operation

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

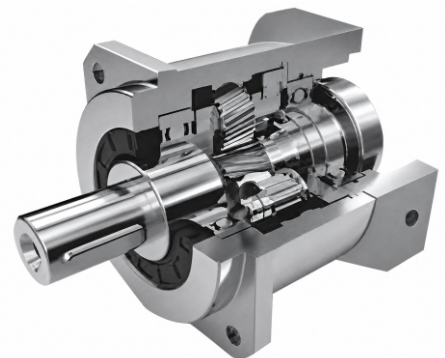
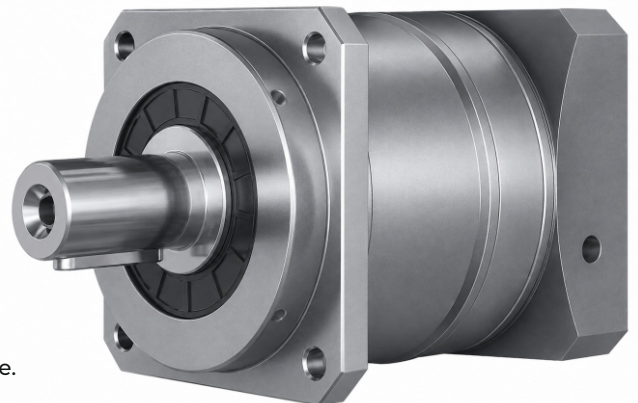
It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

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

NRB090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NRB042, NRB060, NRB090, NRB115,
NRB142, NRB180, NRB220

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

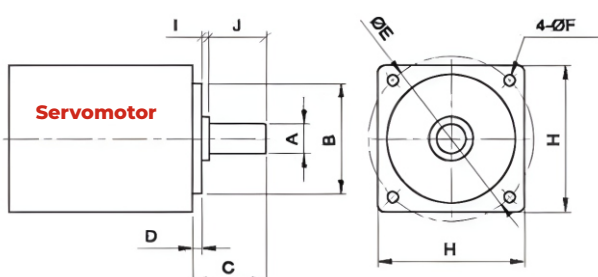
Ratio

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 should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

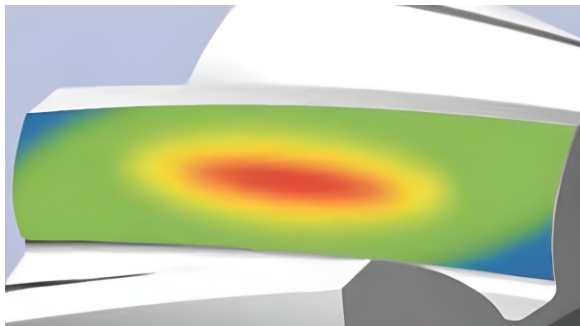
Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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PRODUCT TECHNOLOGY

02

The Nexa series planetary gearbox has two multi-national patented lubrication structures used in the internal spiral gear system to ensure maximum transmission efficiency.

- 1: Reduces the axial thrust generated during planetary gear operation. Patent
- 2: Improves lubrication while reducing friction resistance and operating noise.

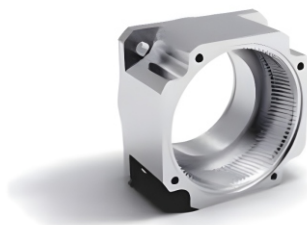


Finite Element Analysis Finite element analysis (FEA) using ANSYS technology is applied to evaluate gear strength. Tooth profile modification and lead trimming reduce gear meshing impact and noise while significantly extending the service life of the gearbox.

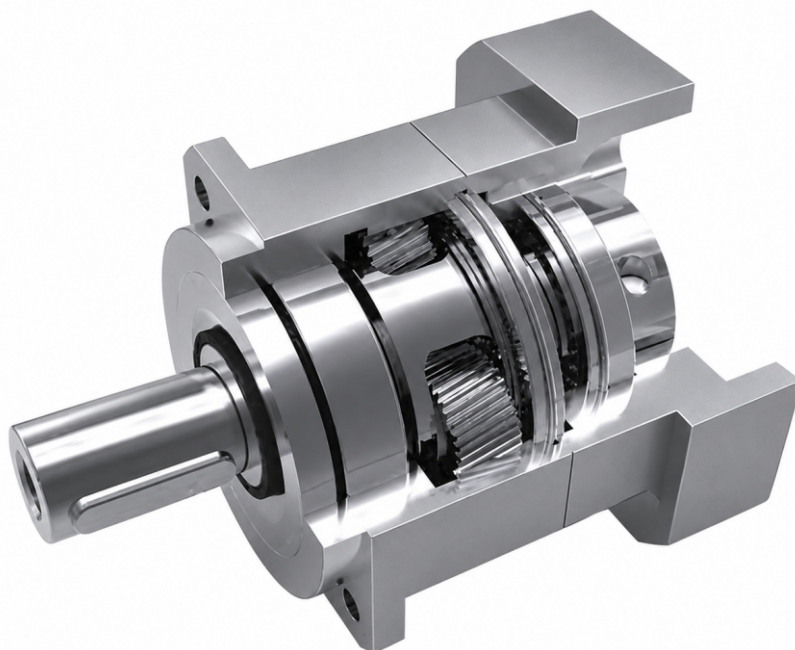


Output Planet Carrier The output planet carrier adopts an integral double-support structure. The front and rear bearings are distributed inside the gearbox housing, creating a stable integrated structure that provides: High torsional rigidity, High positioning accuracy, Improved transmission stability.

Integrated Output Housing The tooth ring and output housing are manufactured as an integrated component. High-quality forged steel provides:
Higher material density
Greater dimensional accuracy
Increased structural strength
Compared with traditional embedded or clamped structures, the integrated design offers significantly higher precision.



Carbon-nitriding heat-treated high-quality alloy steel is used for all gears, providing excellent: Wear resistance, Impact toughness, Long service life.



Integrated Input Shaft Locking System The input shaft and locking device are designed as a single integrated mechanism. Two symmetrically positioned locking bolts provide:

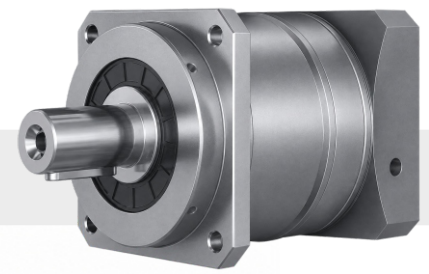
- Dynamic balance
- Strong clamping force
- Slip prevention
- High-precision zero-backlash power transmission



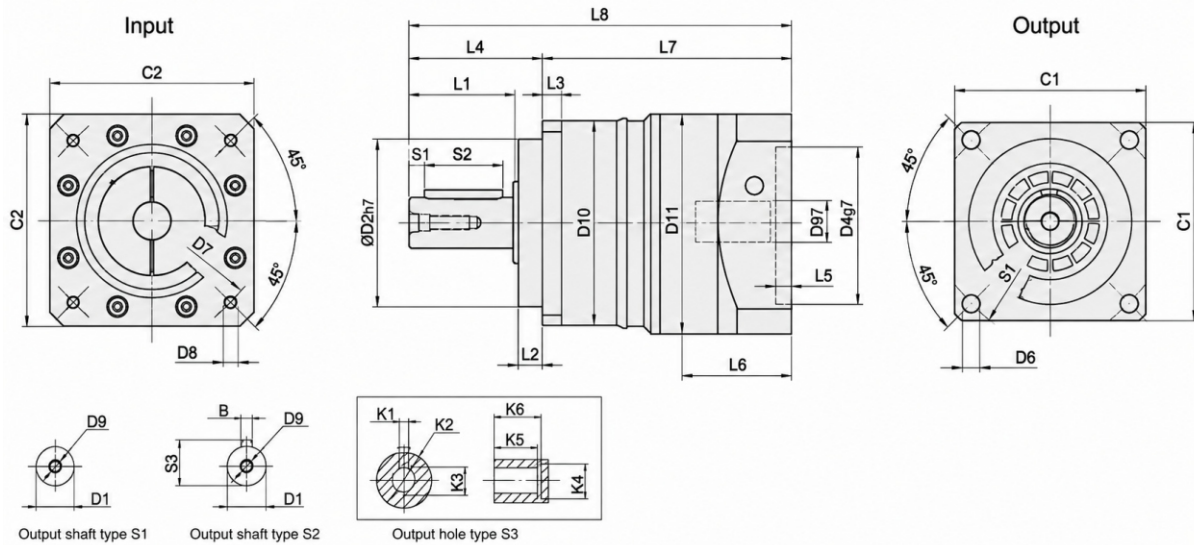
MODEL : NRB

03

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10



Dimensions:



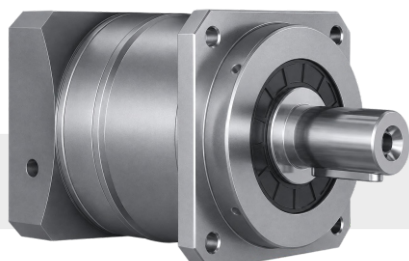
Unit:mm

Size	NRB042-L1	NRB060-L1	NRB090-L1	NRB115-L1	NRB142-L1	NRB180-L1	NRB220-L1
D1	Φ13	Φ16	Φ22	Φ32	Φ40	Φ55	Φ75
D2	Φ35	Φ50	Φ80	Φ110	Φ130	Φ160	Φ180
D3	Φ8 (6.35-11)	Φ11 (11-19)	Φ19 (16-24)	Φ22 (19-35)	Φ24 (22-35)	Φ35 (35-42)	Φ42 (35-55)
D4	Φ30	Φ50	Φ70	Φ110	Φ110	Φ143	Φ180
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	...	...	...	...	...	...	...
D8	4-M4	4-M5	4-M6	4-M8	4-M8	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	6	8	7	8
L6	27.5	34	44	64.5	72.5	85	109
L7	65.5	78	98	135	154.5	179	220
L8	91.5	115	146	201	251.5	284	358
C1	42	60	90	115	142	180	220
C2	46	65	90	130	130	180	200
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 () 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.

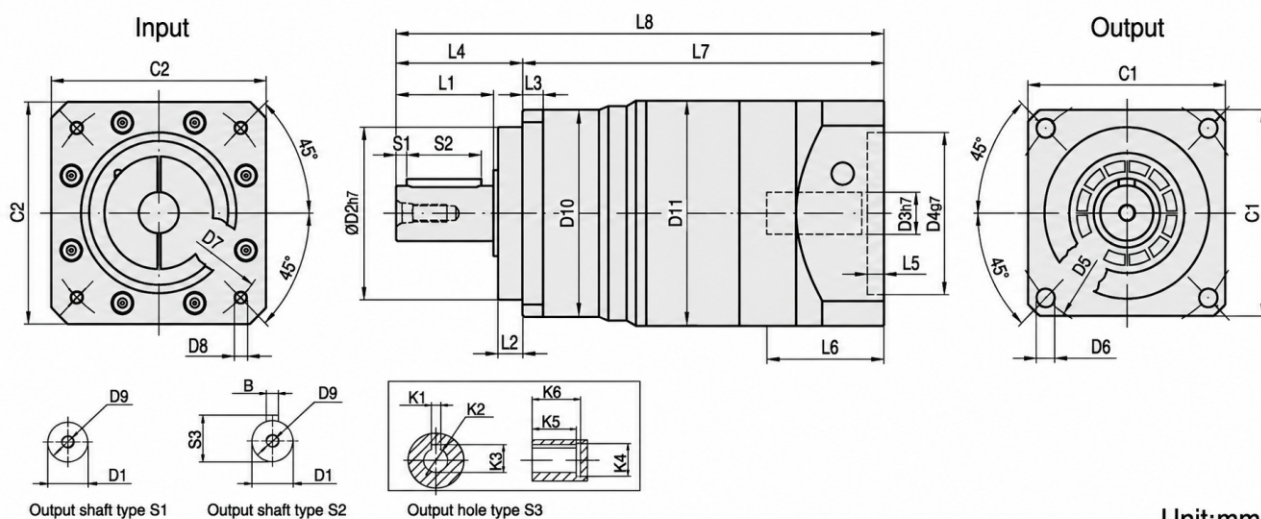


MODEL NRB

2- Stage : 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80
90, 100, 120, 140, 160, 180, 200

04

Dimensions:



Unit:mm

Size	NRB042-L2	NRB060-L2	NRB090-L2	NRB115-L2	NRB142-L2	NRB180-L2	NRB220-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 (φ 6.35-8)	φ 14 (φ 11-14)	φ 19 (φ 11-19)	φ 22 (φ 16-24)	φ 24 (φ 19-35)	φ 35 (φ 22-35)	φ 42 (φ 35-42)
D4	φ 30 (φ 30-38.1)	φ 50	φ 70 (φ 50-80)	φ 110 (φ 70-110)	φ 110 (φ 110-114.3)	φ 114.3 (φ 110-114.3)	φ 180 (φ 114.3-200)
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 (φ 45-66.67)	φ 70	φ 90 (φ 70-100)	φ 145 (φ 90-145)	φ 145 (φ 145-200)	φ 200 (φ 145-200)	φ 215 (φ 200-235)
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	M5X0.8P	M8X1.25P	M12X1.75P	M16X2P	M20X2.5P	M20X2.5P
D10	φ 42	φ 60	φ 87	φ 114.5	φ 142	φ 180	φ 218
D11	φ 46	φ 65	φ 90	φ 118	φ 150	φ 184	φ 225.5
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	-	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	-	12.8	24.5	31.3	41.3	53.8	64.4
K4	-	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
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.

NRB Reducer Specifications

Specs	Unit	Stage	Ratio	NRB042	NRB060	NRB090	NRB115	NRB142	NRB180	NRB220
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
		2	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	3 Times of Nominal Output Torque						
Rated Input Speed / n1N	rpm	1, 2	3~100	5000	5000	4000	4000	3000	3000	2000
Max. Input Speed / n1B	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 / F2rB ²	N	1, 2	3~100	780	1530	3250	6700	9400	14500	50000
Max. Axial Force / F2aB ²	N	1, 2	3~100	390	765	1625	3350	4700	7250	25000
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	1,3	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	NRB042	NRB060	NRB090	NRB115	NRB142	NRB180	NRB220
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
		2	12~40	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. 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

PRECISION PLANETARY GEARBOX

NVB

06



Features

Quiet operation

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

Model Selection of Speed Reducers NVB Type

NVB090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NVB042, NVB060, NVB090, NVB115,
NVB142, NVB180, NVB220

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

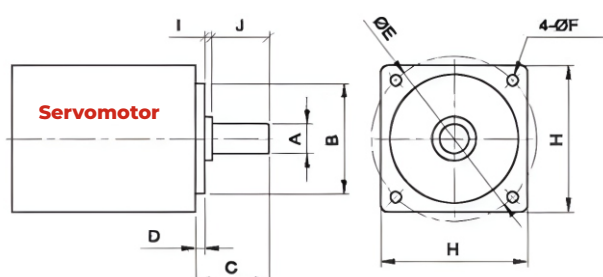
Ratio

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10, 14, 16, 20
2- Stage : 15, 20, 25, 30, 35, 40, 45, 50, 60, 70,
80, 90, 100, 120, 140, 160, 180, 200

Backlash Grade

P0 - High Precision Backlash
P1 - Precision Backlash
P2 - Standard Backlash

The gearbox matching motor should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

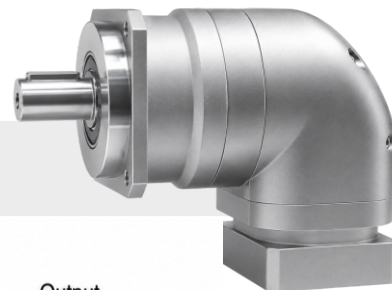
Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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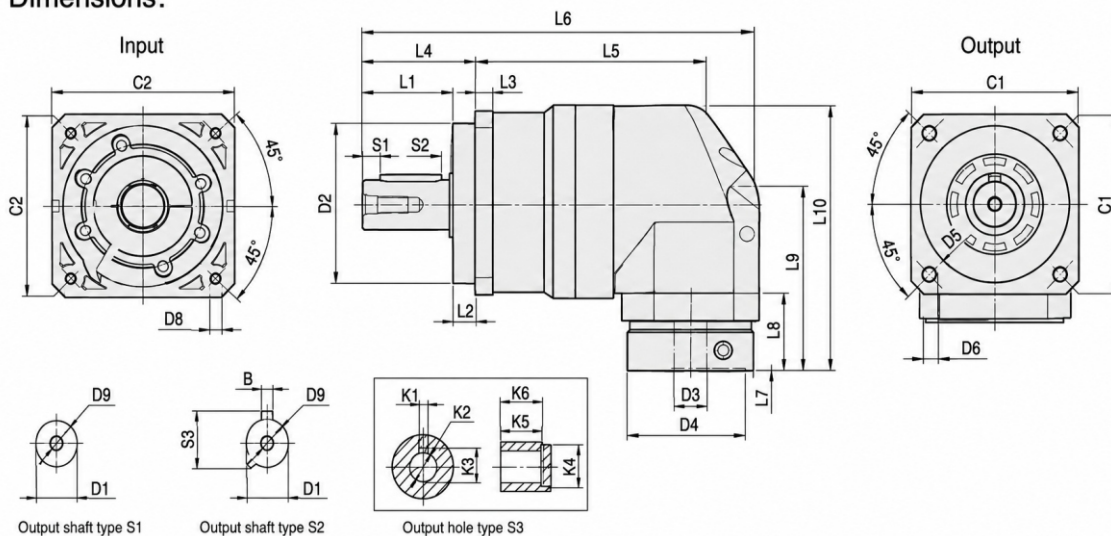
MODEL NVB

07

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10, 14, 16, 20



Dimensions:



Unit:mm

Size	NVB042-L1	NVB060-L1	NVB090-L1	NVB115-L1	NVB142-L1	NVB180-L1	NVB220-L1
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	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	-	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	-	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.



08

Unit:mm

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.

NVB Reducer Specifications

Specs	Unit	Stage	Ratio	NVB042	NVB060	NVB090	NVB115	NVB142	NVB180	NVB220
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	650	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	60	160	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	3 Times of Nominal Output Torque						
Rated Input Speed / n1N	rpm	1, 2	3~200	3000	3000	3000	3000	2500	2000	2000
Max. Input Speed / n1B	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 / F2rB ²	N	1, 2	3~200	780	1300	3200	6750	9400	14500	50000
Max. Axial Force / F2aB 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

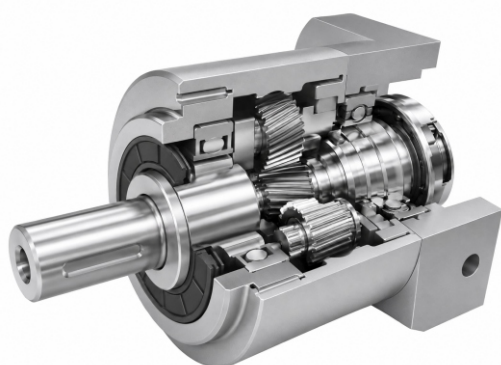
Specs	Unit	Stage	Ratio	NVB042	NVB060	NVB090	NVB115	NVB142	NVB180	NVB220
Moment of Inertia	kg.cm ²	1	3~10	0,09	0,35	2,25	6,84	23,4	68,9	135,4
			14~20	0,03	0,07	1,87	6,25	21,8	65,6	119,8
		2	15~100	0,09	0,09	0,35	2,25	6,84	23,4	68,9
			120~200	—	—	0,31	1,87	6,25	21,8	65,6

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.

PRECISION PLANETARY GEARBOX

NXL

10



Features

Quiet operation

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

Model Selection of Speed Reducers NRL Type

NXL090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NXL050, NXL070, NXL090, NXL120,
NXL155, NXL205, NXL235

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

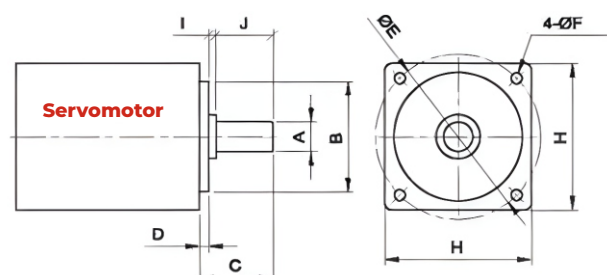
Ratio

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 should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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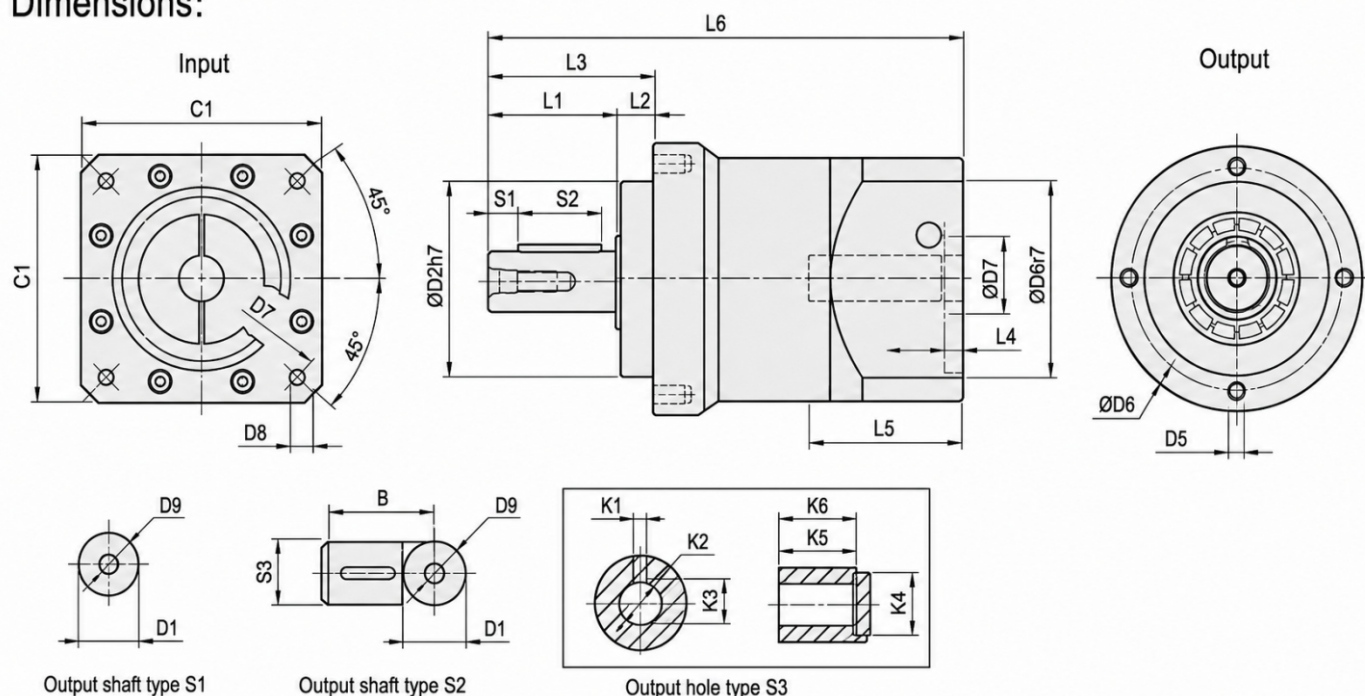
MODEL NXL

11

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10



Dimensions:



Unit:mm

Size	NXL070-L1	NXL090-L1	NXL120-L1	NXL155-L1	NXL205-L1	NXL235-L1
D1	φ 16	φ 22	φ 32	φ 40	φ 55	φ 75
D2	φ 52	φ 68	φ 90	φ 120	φ 160	φ 180
D3	φ 14 (φ 11-14)	φ 19 (φ 16-24)	φ 22 (φ 19-35)	φ 24 (φ 22-35)	φ 35 (φ 35-42)	φ 42 (φ 35-55)
D4	φ 50 (φ 50-70)	φ 70 (φ 70-110)	φ 110 (φ 114.3)	φ 110 (φ 114.3)	φ 114.3 (φ 114.3-200)	φ 180 (φ 114.3-200)
D5	4-M5X10L	4-M6X12L	4-M8X16L	4-M10X20L	4-M12X22L	4-M16X28L
D6	φ 62	φ 80	φ 108	φ 140	φ 184	φ 210
D7	φ 70 (φ 70-90)	φ 90 (φ 90-145)	φ 145 (φ 145-200)	φ 145 (φ 145-200)	φ 200 (φ 200-235)	φ 215 (φ 200-235)
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	6~11	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	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	12.8	24.5	31.3	41.3	53.8	64.4
K4	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
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.

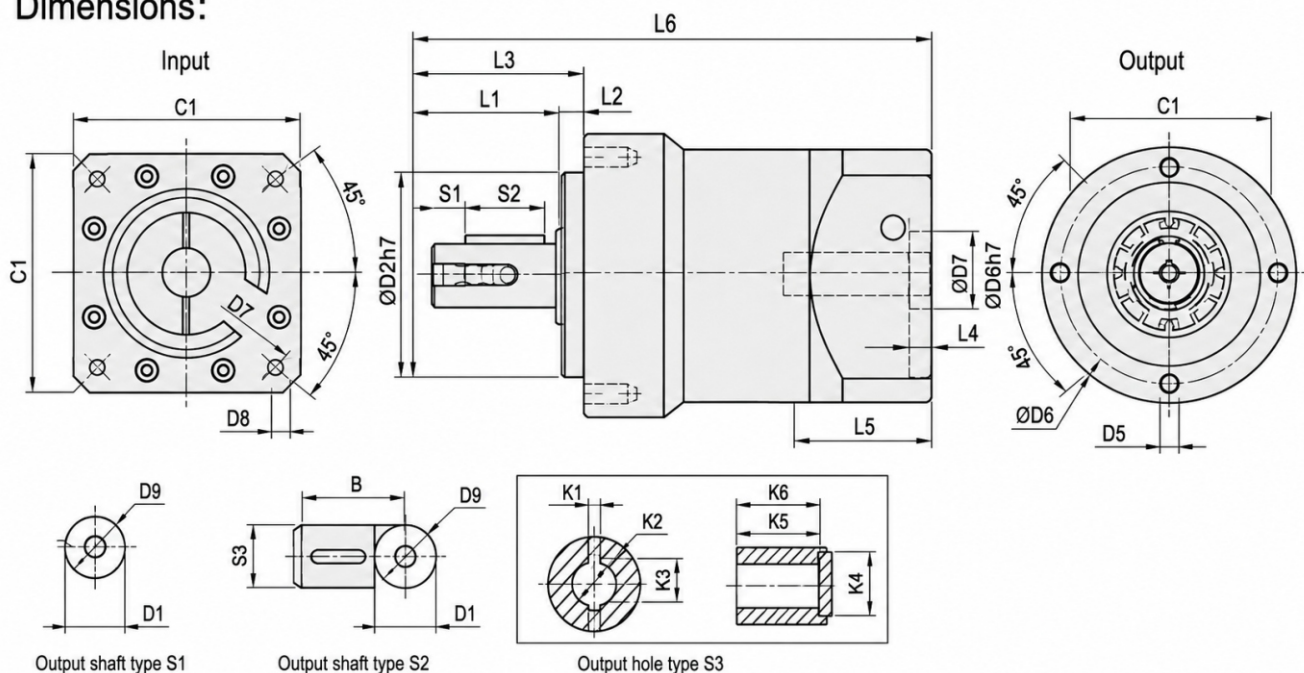


MODEL NXL

2- Stage : 10, 15, 20, 25, 30, 35, 40, 45, 50
60, 70, 80, 90, 100

12

Dimensions:



Unit:mm

Size	NXL070-L1	NXL090-L2	NXL120-L2	NXL155-L2	NXL205-L2	NXL235-L2
D1	φ 16	φ 22	φ 32	φ 40	φ 55	φ 75
D2	φ 52	φ 68	φ 90	φ 120	φ 160	φ 180
D3	φ 14 (φ 11-14)	φ 19 (φ 11-19)	φ 22 (φ 16-24)	φ 24 (φ 19-35)	φ 35 (φ 22-35)	φ 42 (φ 35-42)
D4	φ 50	φ 70 (φ 50-φ 80)	φ 110 (φ 70-φ 110)	φ 110 (φ 114.3)	φ 110 (φ 114.3)	φ 180 (φ 114.3-200)
D5	4-M5X10L	4-M6X12L	4-M8X16L	4-M10X20L	4-M12X22L	4-M16X28L
D6	φ 62	φ 80	φ 108	φ 140	φ 184	φ 210
D7	φ 70	φ 90 (φ 70-100)	φ 145 (φ 90-145)	φ 145 (φ 145-200)	φ 145 (φ 145-200)	φ 215 (φ 200-235)
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	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	12.8	24.5	31.3	41.3	53.8	64.4
K4	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
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.

NXL Reducer Specifications

Specs	Unit	Stage	Ratio	NXL050	NXL070	NXL090	NXL120	NXL155	NXL205	NXL235
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
		2	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	3 Times of Nominal Output Torque						
Rated Input Speed / n1N	rpm	1, 2	3~100	5000	5000	4000	4000	3000	3000	2000
Max. Input Speed / n1B	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 / F2rB ²	N	1, 2	3~100	680	1260	2880	6000	8200	12800	27800
Max. Axial Force / F2aB 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	NXL050	NXL070	NXL090	NXL120	NXL155	NXL205	NXL235
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
		2	12~40	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



Features

Quiet operation

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

Model Selection of Speed Reducers NVL Type

NVL090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NVL070, NVL090, NVL120,
NVL145, NVL180

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

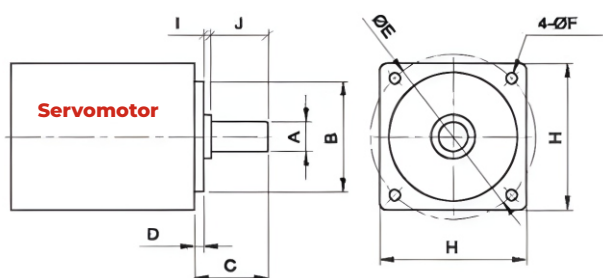
Ratio

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 should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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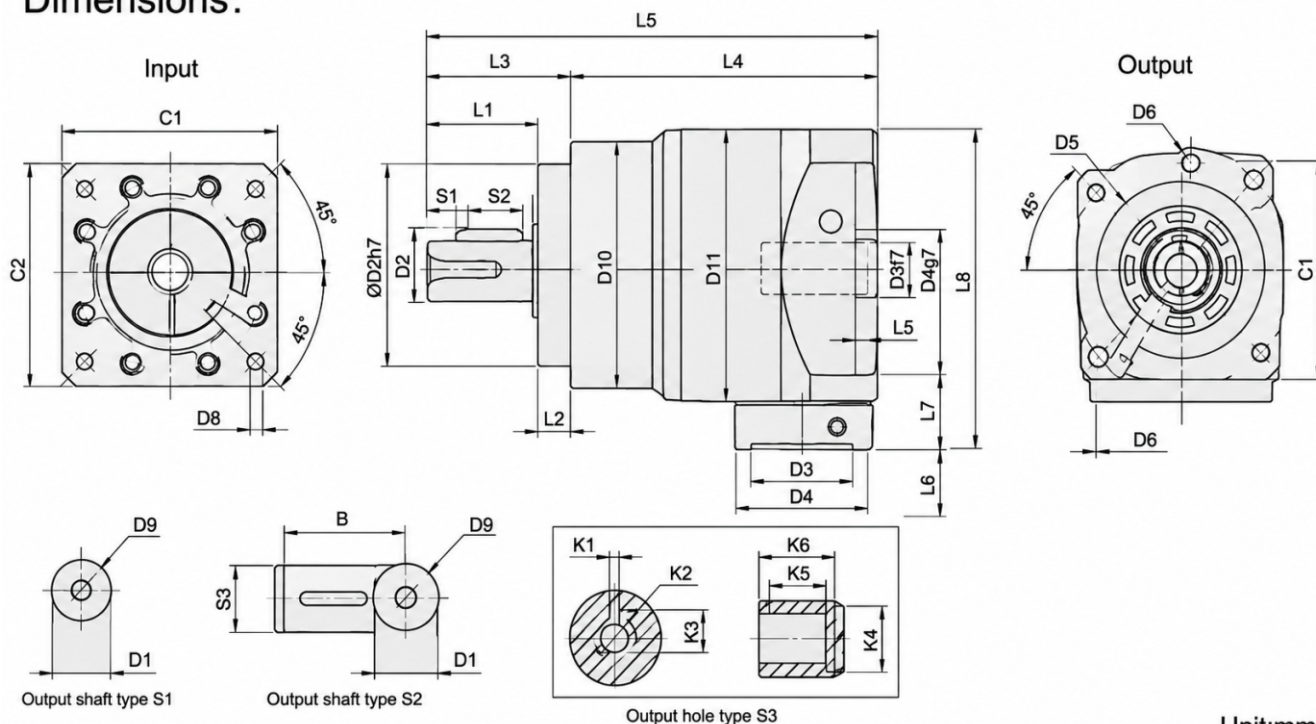


MODEL NVL

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10

15

Dimensions:



Unit:mm

Size	NVL070-L1	NVL090-L1	NVL120-L1	NVL145-L1	NVL180-L1
D1	φ 16	φ 22	φ 32	φ 40	φ 55
D2	φ 52	φ 68	φ 90	φ 120	φ 160
D3	φ 14 (≤ 19)	φ 19 (11-24)	φ 24 (16-24)	φ 24 (≤ 42)	φ 35 (≤ 55)
D4	φ 50 (50-70)	φ 70 (50-110)	φ 110 (50-110)	φ 110 (≤ 180)	φ 114.3 (≤ 180)
D5	φ 62	φ 80	φ 108	φ 140	φ 184
D6	4-M5*10	4-M6*12	4-M8*16	4-M10*20L	4-M12*30L
D7	φ 70 (70-130)	φ 90 (70-145)	φ 145 (90-155)	φ 145 (≤ 215)	φ 200 (≤ 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	φ 70	φ 90	φ 120	φ 155	φ 205
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	φ 11	φ 22	φ 28	φ 38	φ 50
K3	12.8	24.5	31.3	42	53.8
K4	φ 16	φ 32	φ 38	φ 48	φ 60
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.

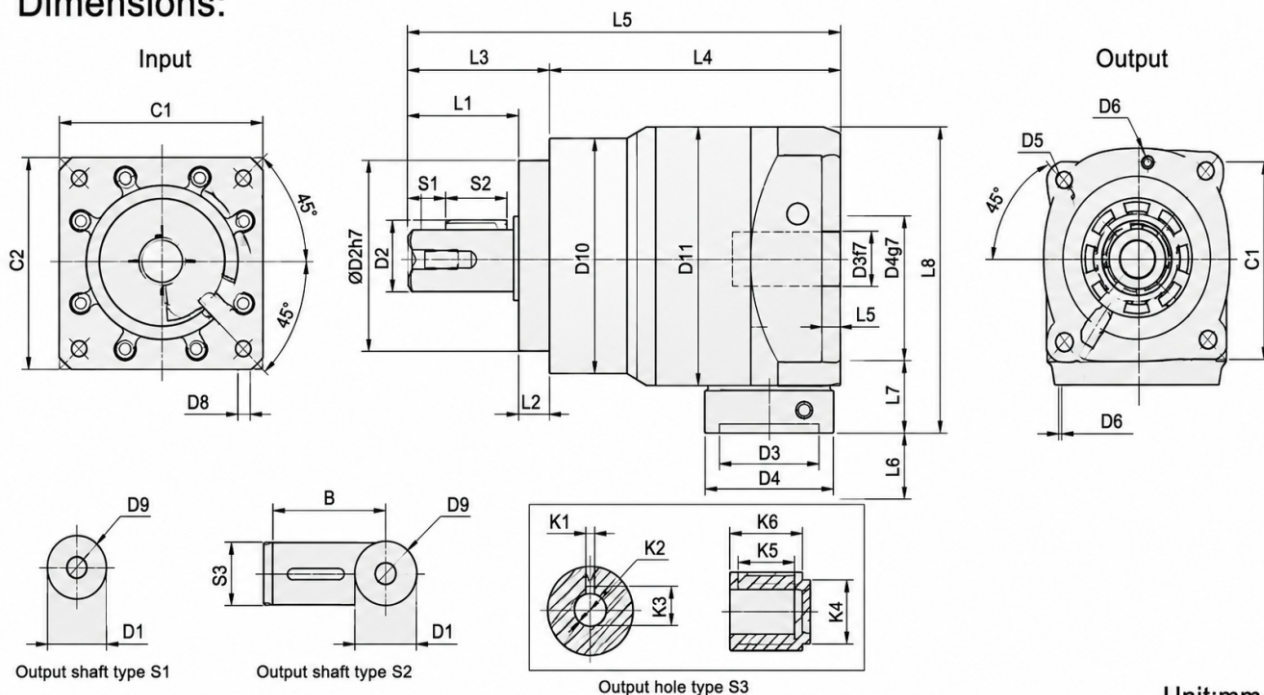
MODEL NVL

16

2- Stage : 10, 15, 20, 25, 30, 35, 40, 45, 50
60, 70, 80, 90, 100



Dimensions:



Unit:mm

Size	NVL070-L2	NVL090-L2	NVL120-L2	NVL145-L2	NVL180-L2
D1	φ 16	φ 22	φ 32	φ 40	φ 55
D2	φ 52	φ 68	φ 90	φ 120	φ 160
D3	φ 14 (≤ 19)	φ 19 (11-24)	φ 24 (16-24)	φ 24 (≤ 42)	φ 35 (≤ 55)
D4	φ 50 (50-70)	φ 70 (50-110)	φ 110 (50-110)	φ 110 (≤ 180)	φ 114.3 (≤ 180)
D5	φ 62	φ 80	φ 108	φ 140	φ 184
D6	4-M5*10	4-M6*12	4-M8*16	4-M10*20L	4-M12*30L
D7	φ 70 (70-130)	φ 90 (70-145)	φ 145 (90-155)	φ 145 (≤ 215)	φ 200 (≤ 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	φ 70	φ 90	φ 120	φ 155	φ 205
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	φ 11	φ 22	φ 28	φ 38	φ 50
K3	12.8	24.5	31.3	42	53.8
K4	φ 16	φ 32	φ 38	φ 48	φ 60
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.

NVL Reducer Specifications

Specs	Unit	Stage	Ratio	NVL070	NVL090	NVL120	NVL145	NVL180
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 / T2NOT ¹	Nm	1, 2	3~200	3 Times of Nominal Output Torque				
Rated Input Speed / n1N	rpm	1, 2	3~200	3000	3000	3000	2500	2000
Max. Input Speed / n1B	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 / F2rB ²	N	1, 2	3~200	1300	3200	6750	9400	14500
Max. Axial Force / F2aB 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	°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	≤ 68	≤ 68	≤ 70	≤ 72

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	NVL070	NVL090	NVL120	NVL145	NVL180
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.

Features**Quiet operation**

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

**Model Selection of Speed Reducers** NVT Type

NVT090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NVT047, NVT064, NVT090,
NVT110, NVT140, NVT200,
NVT255

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

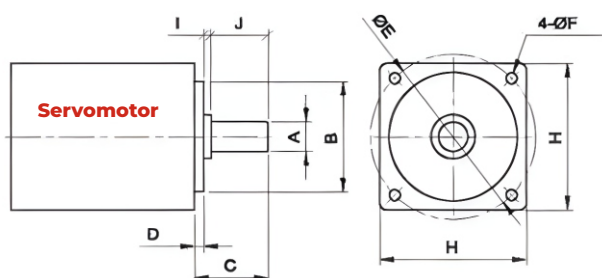
Ratio

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 should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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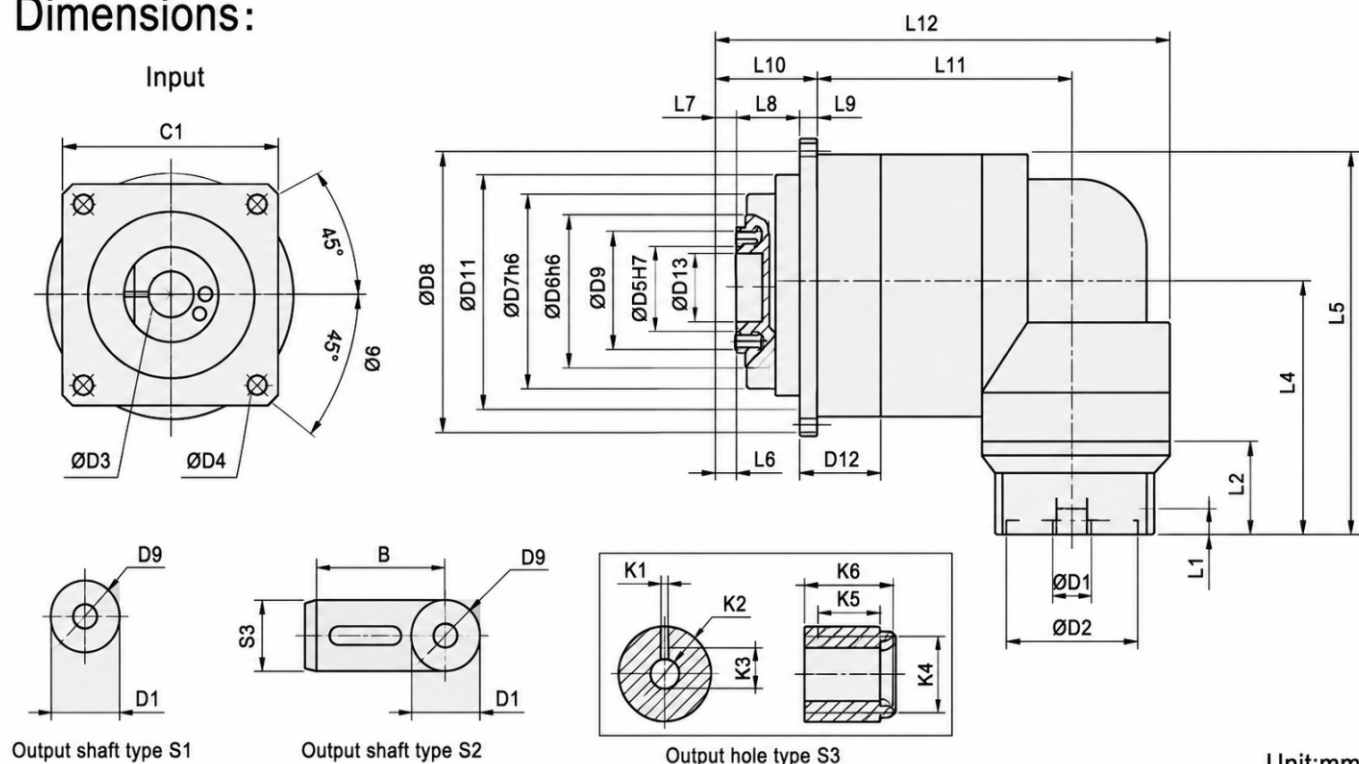
MODEL NVT

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2- Stage : 10, 15, 20, 25, 30, 35, 40, 45, 50
60, 70, 80, 90, 100



Dimensions:



Size	NVT047-L1	NVT064-L1	NVT090-L1	NVT110-L1	NVT140-L1	NVT200-L1	NVT255-L1
D1	≤11/≤12	11(11 ~ 14)	19(19 ~ 24)	24(22 ~ 32)	32(24 ~ 35)	≤48	≤55+B2:H27
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



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Unit:mm

Size	NVT47-L2	NVT064-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

NVT Reducer Specifications

Specs	Unit	Stage	Ratio	NVT047	NVT064	NVT090	NVT110	NVT140	NVT200	NVT255
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 / T2NOT ¹	Nm	1, 2	4~100	3 Times of Nominal Output Torque						
Rated Input Speed / n1N	rpm	1, 2	4~100	5000	5000	4000	4000	3000	3000	2000
Max. Input Speed / n1B	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 / F2rB ²	N	1, 2	4~100	43	125	235	430	1300	3064	5900
Max. Axial Force / F2aB ²	N	1, 2	4~100	990	1050	2850	2990	10590	16660	29430
Service Life	hr	1, 2	4~100	22000 h						
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	°C	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	≤ 58	≤ 59	≤ 62	≤ 65	≤ 68	≤ 69	≤ 70

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	NVT047	NVT064	NVT090	NVT110	NVT140	NVT200	NVT255
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

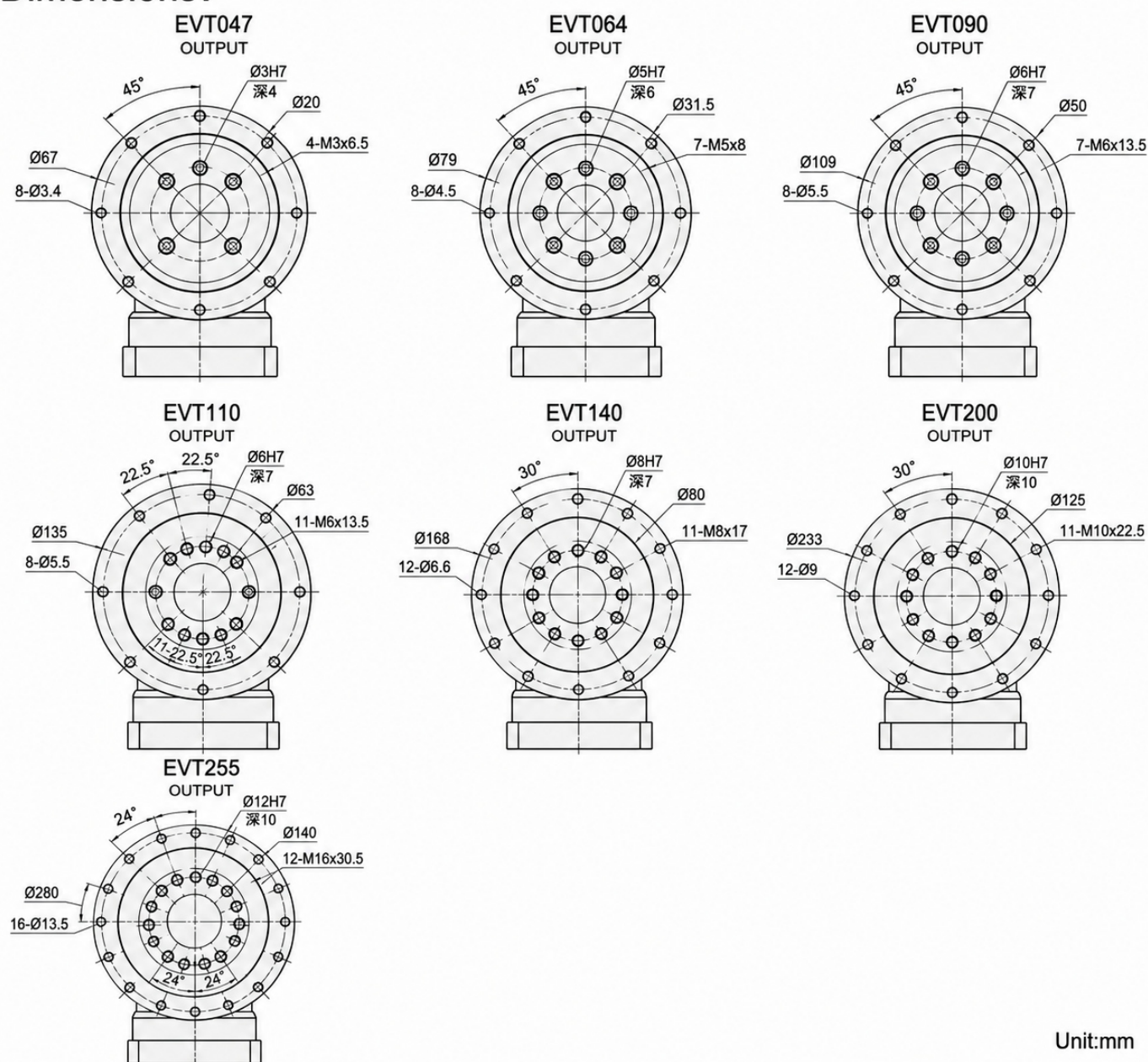
1. Ratio (i=Nin/Nout) .
2. 2. The Max. acceleration torque T2B=60% of T2NOT.
3. When output speed is 100rpm, acting on the output shaft center position *Continuous operation, service life is 15000hrs.

MODEL NVT

Output Dimensions



Dimensions:



Unit:mm

PRECISION PLANETARY GEARBOX

NRS



Features

Quiet operation

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

Model Selection of Speed Reducers NRS Type

NRS090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NRS060, NRS075, NRS100, NRS140,
NRS180, NRS210, NRS240

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

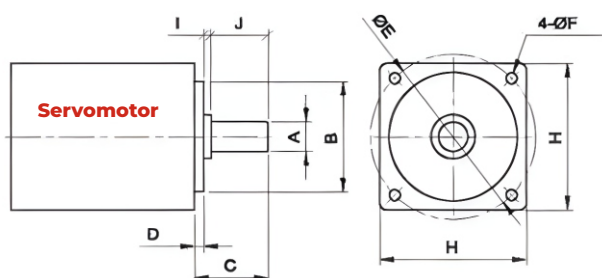
Ratio

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 should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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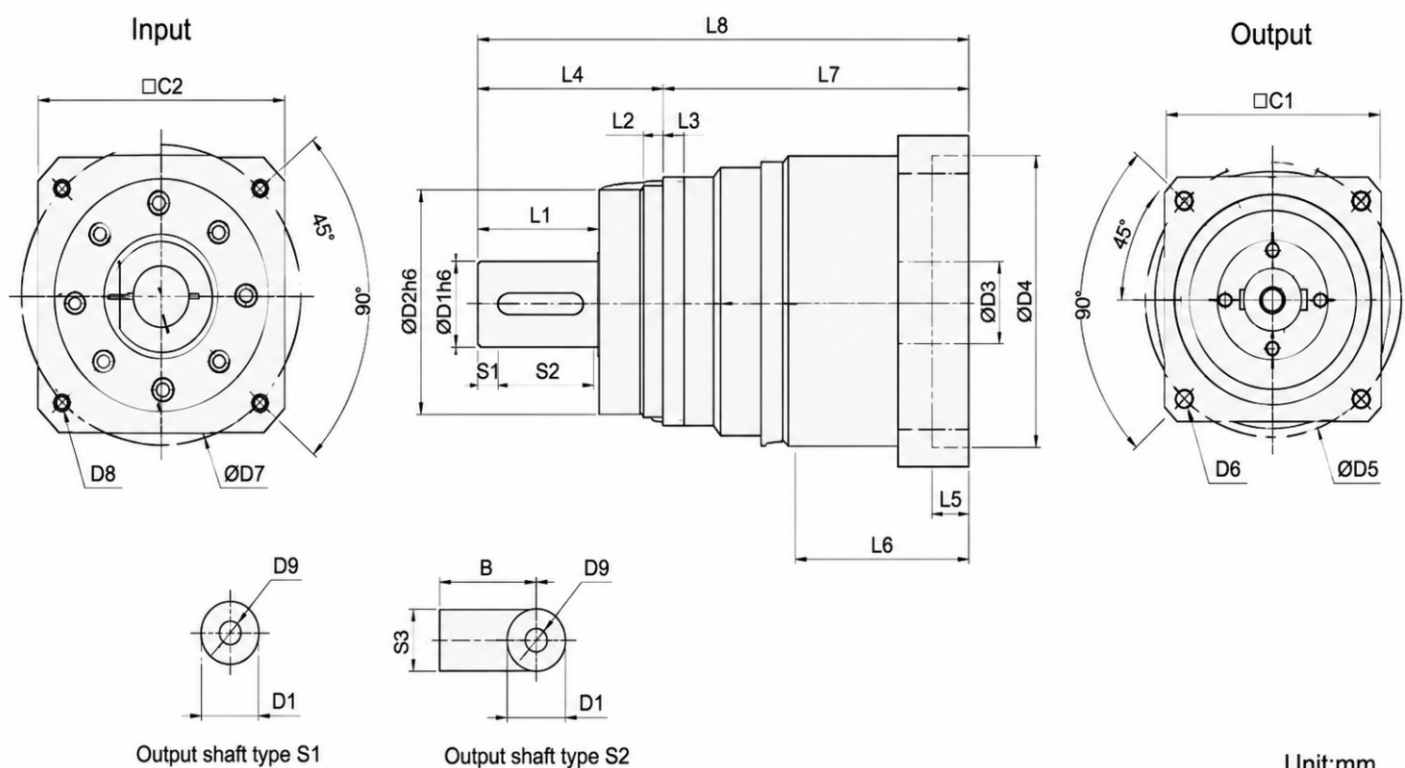


MODEL NRS

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10

24

Dimensions :



Unit:mm

Size	NRS060-L1	NRS075-L1	NRS100-L1	NRS140-L1	NRS180-L1	NRS210-L1	NRS240-L1
D1	16	22	32	40	55	75	85
D2	60	70	90	130	160	180	200
D3	8(8 ~ 19)	14(14 ~ 24)	19(19 ~ 35)	24(24 ~ 48)	38(38 ~ 48)	48(48 ~ 55)	60
D4	30(30 ~ 70)	50(50 ~ 110)	70(70 ~ 114.3)	110(110 ~ 114.3)	114.3(114.3 ~ 200)	200	220
D5	68	85	120	165	215	250	290
D6	4-Ø5.5	4-Ø6.6	4-Ø9	4-Ø11	4-Ø13.5	4-Ø17	4-Ø17
D7	46(45 ~ 90)	70(70 ~ 145)	90(90 ~ 200)	145(145 ~ 200)	200(200 ~ 235)	235	240
D8	M3 ~ M5	M4 ~ M8	M5 ~ M12	M8 ~ M12	M12	M12	M16
D9	M5	M8	M12	M16	M20	M20	M20
L1	28	36	58	82	82	105	130
L2	5	6	8	10	12	15	20
L3	6	7	10	12	15	17	20
L4	48	56	88	112	112	143	170
L5	7.5 ~ 9	10.5 ~ 16	12 ~ 36.5	8	10	10	12
L6	42 ~ 43.5	50.5 ~ 66	62 ~ 82	69 ~ 115	83 ~ 117	116	55
L7	94.5 ~ 96	117.5 ~ 133	139 ~ 153	170 ~ 216	210 ~ 244	257	295
L8	142.5 ~ 144	173.5 ~ 189	227 ~ 247	282 ~ 328	322 ~ 356	400	465
C1	60	75	100	140	182	215	240
C2	40(40 ~ 80)	60(60 ~ 130)	80(80 ~ 180)	130(130 ~ 180)	180(180 ~ 220)	220	250
S1	2	3	10	5	6	7	3
S2	22	28	40	70	70	90	105
S3	18	24.5	35	43	59	79.5	90
B	5	6	10	12	16	20	22

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.

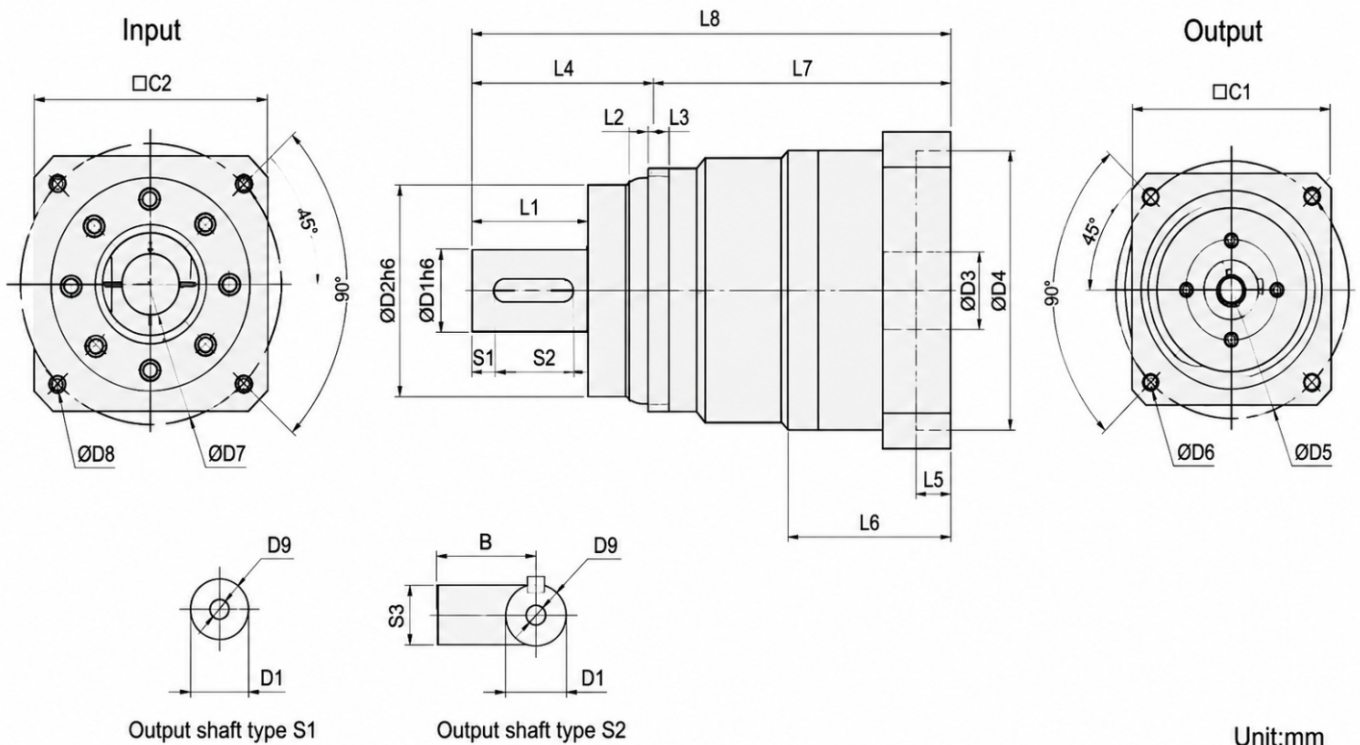
MODEL NRS

25

2- Stage : 10, 15, 20, 25, 30, 35, 40, 45, 50
60, 70, 80, 90, 100



Dimensions :



Unit:mm

Size	NRS060-L2	NRS075-L2	NRS100-L2	NRS140-L2	NRS180-L2	NRS210-L2	NRS240-L2
D1	16	22	32	40	55	75	85
D2	60	70	90	130	160	180	200
D3	8(8 ~ 14)	14(14 ~ 24)	19(19 ~ 28)	24(24 ~ 38)	38(24 ~ 42)	48(48 ~ 55)	48
D4	30(30 ~ 50)	50(50 ~ 110)	50(50 ~ 110)	110(110 ~ 114.3)	114.3(110 ~ 114.3)	200	220
D5	68	85	120	165	215	250	290
D6	4-Ø5.5	4-Ø6.6	4-Ø9	4-Ø11	4-Ø13.5	4-Ø17	4-Ø17
D7	46(45 ~ 70)	70(70 ~ 145)	70(70 ~ 145)	145(145 ~ 200)	200(145 ~ 200)	235	240
D8	M3 ~ M5	M4 ~ M8	M5 ~ M8	M8 ~ M12	M8 ~ M12	M12	M16
D9	M5	M8	M12	M16	M20	M20	M20
L1	28	36	58	82	82	105	130
L2	5	6	8	10	12	15	20
L3	6	7	10	12	15	17	20
L4	48	56	88	112	112	143	170
L5	8 ~ 9	10.5 ~ 16	12 ~ 18.5	6 ~ 8	6 ~ 10	10	12
L6	42.5 ~ 43.5	50.5 ~ 66	61 ~ 68	69 ~ 81	69 ~ 117	116	55
L7	116.5 ~ 117.5	143 ~ 158.5	172 ~ 178	210 ~ 222	236.5 ~ 293.5	257	346
L8	164.5 ~ 165.5	199 ~ 214.5	260 ~ 266	322 ~ 334	348.5 ~ 406.5	400	516
C1	60	75	100	140	182	215	240
C2	40(40 ~ 65)	60(60 ~ 130)	60(60 ~ 130)	130(130 ~ 180)	130(130 ~ 180)	220	250
S1	2	3	10	5	6	7	3
S2	22	28	40	70	70	90	105
S3	18	24.5	35	43	59	79.5	90
B	5	6	10	12	16	20	22

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.

NVT Reducer Specifications

Specs	Unit	Stage	Ratio	NRS060	NRS075	NRS100	NRS140	NRS180	NRS210	NRS240
Rated Output Torque / T2N	Nm	1	3	55	130	208	342	588	1140	1500
			4	50	140	290	542	1050	1700	2500
			5	60	160	330	650	1200	2000	2500
			6	55	150	310	600	1100	1900	2260
			7	50	140	300	550	1100	1800	2300
			8	45	120	260	500	1000	1600	2100
			9	40	100	230	450	900	1500	1800
			10	40	100	230	450	900	1500	1800
		2	15	55	130	208	342	588	1140	2300
			16	55	130	208	342	588	1140	2300
			20	50	140	290	542	1050	1700	2500
			25	60	160	330	650	1200	2000	2500
			28	60	160	330	650	1200	2000	2500
			30	55	150	310	600	1100	1900	2300
			35	50	140	300	550	1100	1800	2200
			40	45	120	260	500	1000	1600	2350
			50	60	160	330	650	1200	2000	2200
			70	50	140	300	550	1100	1800	2200
			100	40	100	230	450	900	1500	1800
Max. Output Torque / T2NOT ¹	Nm	1, 2	3~100	3 Times of Nominal Output Torque						
Rated Input Speed / n1N	rpm	1, 2	3~100	5000	4000	4000	3000	3000	2000	1000
Max. Input Speed / n1B	rpm	1, 2	3~100	10000	8000	8000	6000	6000	4000	2500
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	15~100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Torsional Rigidity	Nm/arcmin	1, 2	3~100	7	14	25	50	145	225	260
Max. Radial Force / F2rB ²	N	1, 2	3~100	2750	4100	6400	9880	15000	20000	27500
Max. Axial Force / F2aB ²	N	1, 2	3~100	2350	3200	5360	9690	14200	28000	30000
Service Life	hr	1, 2	3~100	20000 h						
Efficiency / η	%	1	3~10	≥ 96%						
		2	15~100	≥ 93%						
Weight	kg	1	3~10	1,8	3,8	7,2	16,8	32	49	65
		2	15~100	2,1	4,1	8,1	17,5	35	53	70
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	≤ 62	≤ 62	≤ 65	≤ 68	≤ 68	≤ 70	≤ 70

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	NRS060	NRS075	NRS100	NRS140	NRS180	NRS210	NRS240
Moment of Inertia	kg.cm ²	1	3	0,16	0,61	3,25	9,21	28,98	69,61	82,16
			4	0,14	0,48	2,74	7,54	23,67	54,37	75,58
			5	0,13	0,47	2,71	7,42	23,29	53,27	75,29
			6	0,13	0,45	2,65	7,25	22,75	51,72	72,35
			7	0,13	0,45	2,62	7,14	22,48	50,97	69,13
			8	0,13	0,44	2,58	7,07	22,59	50,84	69,22
			9	0,13	0,44	2,57	7,04	22,53	50,63	66,23
			10	0,13	0,44	2,57	7,03	22,51	50,56	66,23
		2	15~40	0,03	0,13	0,47	2,71	7,42	23,29	48,23
			50~100	0,03	0,13	0,44	2,57	7,03	22,51	45,58

1. Ratio (i=Nin/Nout)
2. When output speed is 100rpm, acting on the output shaft center position
3. *Continuous operation, service life is 10000hrs

PRECISION PLANETARY GEARBOX

NVS

Features

Quiet operation

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

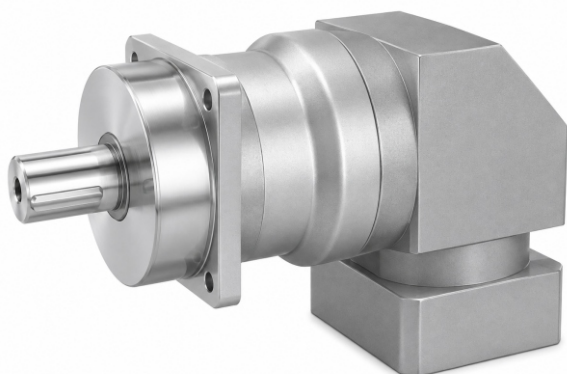
It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.



Model Selection of Speed Reducers NRS Type

NVS090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NVS062, NVS075, NVS100,
NVS142, NVS180

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

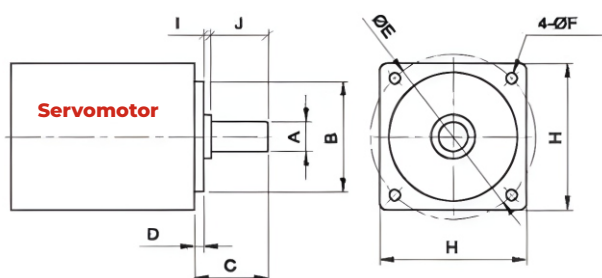
Ratio

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

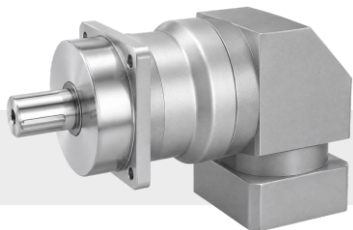
The gearbox matching motor should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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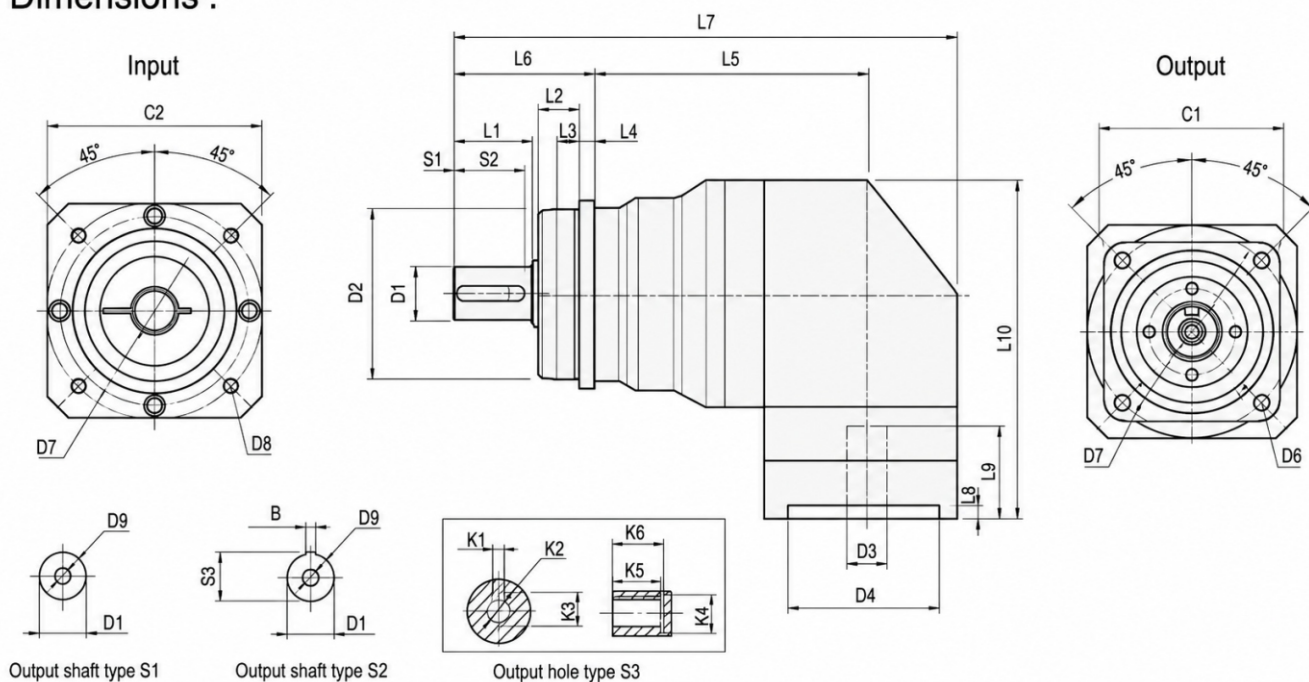


MODEL NVS

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10

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Dimensions :



Unit:mm

Size	NVS062-L1	NVS075-L1	NVS100-L1	NVS142-L1	NVS180-L1
D1	φ 16	φ 22	φ 32	φ 40	φ 55
D2	φ 50	φ 70	φ 90	φ 130	φ 160
D3	φ 14 (≤ 19)	φ 19 (≤ 24)	φ 24 (≤ 35)	φ 24 (≤ 42)	φ 35 (≤ 42)
D4	φ 50 (≤ 70)	φ 70 (≤ 110)	φ 110 (≤ 114.3)	φ 110 (≤ 114.3)	φ 114.3 (≤ 180)
D5	φ 70	φ 85	φ 120	φ 165	φ 215
D6	4-φ 5.5	4-φ 6.6	4-φ 9	4-φ 11	4-φ 13
D7	φ 70 (≤ 130)	φ 90 (≤ 145)	φ 145 (≤ 200)	φ 145 (≤ 200)	φ 200 (≤ 300)
D8	(4-M4*10L)	(4-M5*12.5L)	(4-M8*20L)	(4-M8*16L)	(4-M12*30L)
D9	M5*12L	M6*15L	M12*25L	M16*36L	M20*42L
L1	28.5	36	56	82	82
L2	18	17.5	27	28	27
L3	10	10	15	10	15
L4	6	7	10	12	15
L5	87	120.5	143.5	163.5	117.5
L6	48	56	88	112	112
L7	171	228.5	299	347.5	394.5
L8	(4)	(6)	(14)	(19)	(10)
L9	(32.5)	(43.5)	(67.5)	(64.5)	(118)
L10	(98)	(142)	(185)	(220)	(276.5)
C1	□ 62	□ 76	□ 100	□ 140	□ 180
C2	(□ 60)	(□ 90)	(□ 130)	(□ 130)	(□ 180)
S1	—	2	5	5	6
S2	25	30	40	68	70
S3	18	24.5	35.5	43	59
B	5	6	10	12	16
K1	4	6	8	10	14
K2	φ 11	φ 22	φ 28	φ 38	φ 50
K3	12.8	24.5	31.3	42	53.8
K4	φ 16	φ 32	φ 38	φ 48	φ 60
K5	15	20	27	35	43
K6	18	24	32	40	50

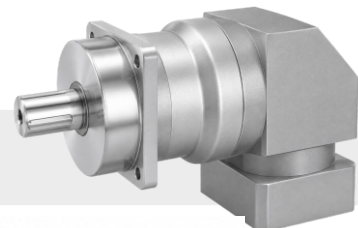
Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.

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

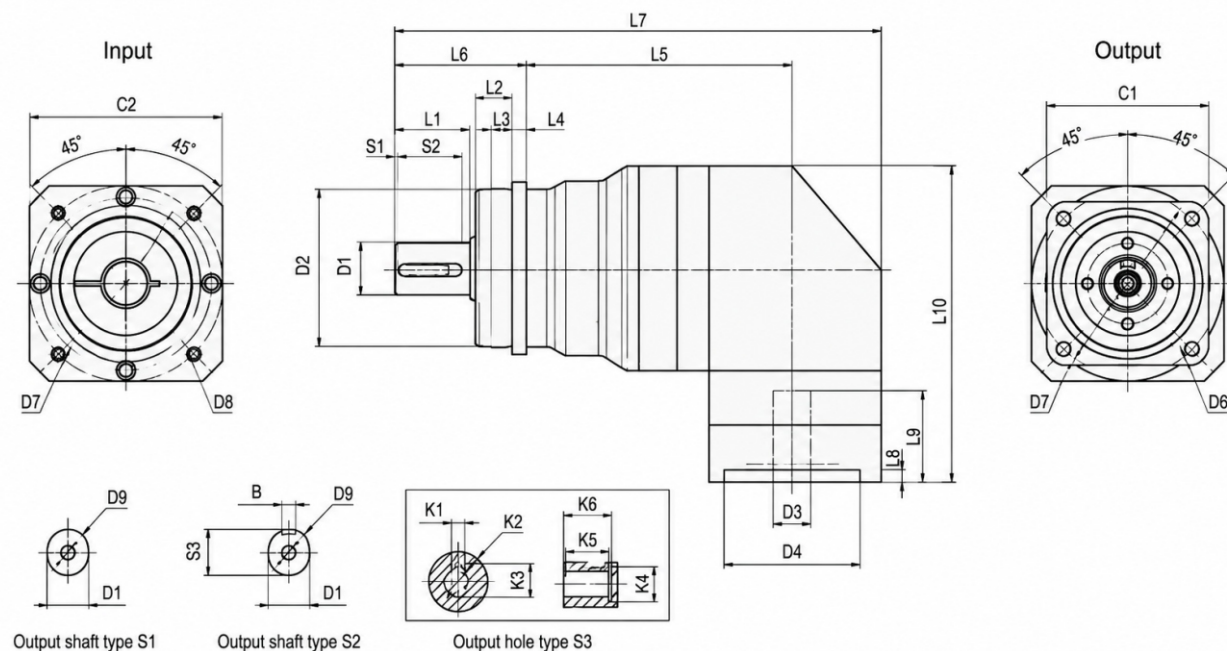
Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

MODEL NVS

2- Stage : 10, 15, 20, 25, 30, 35, 40, 45, 50
60, 70, 80, 90, 100



Dimensions :



Unit:mm

Size	NVS062-L2	NVS075-L2	NVS100-L2	NVS142-L2	NVS180-L2
D1	φ 16	φ 22	φ 32	φ 40	φ 55
D2	φ 50	φ 70	φ 90	φ 130	φ 160
D3	φ 14 (≤ 19)	φ 19 (≤ 24)	φ 24 (≤ 35)	φ 24 (≤ 35)	φ 35 (≤ 55)
D4	φ 50 (≤ 70)	φ 70 (≤ 110)	φ 110 (≤ 114.3)	φ 110 (≤ 114.3)	φ 114.3 (≤ 180)
D5	φ 70	φ 85	φ 120	φ 165	φ 215
D6	4-φ 5.5	4-φ 6.6	4-φ 9	4-φ 11	4-φ 13
D7	φ 70 (≤ 130)	φ 90 (≤ 145)	φ 145 (≤ 200)	φ 145 (≤ 200)	φ 200 (≤ 300)
D8	(4-M4*10L)	(4-M5*12.5L)	(4-M8*20L)	(4-M8*16L)	(4-M12*30L)
D9	M5*12L	M6*15L	M12*25L	M16*36L	M20*42L
L1	28.5	36	56	82	82
L2	18	17.5	27	28	27
L3	10	10	15	10	15
L4	6	7	10	12	15
L5	103.5	148.5	174.5	194.5	217.5
L6	48	56	88	112	112
L7	187.5	256.5	330	378.5	434.5
L8	(4)	(6)	(14)	(6)	(10)
L9	(32.5)	(43.5)	(67.5)	(55.5)	(118)
L10	(98)	(142)	(185)	(196)	(276.5)
C1	□ 62	□ 76	□ 100	□ 140	□ 180
C2	(□ 60)	(□ 90)	(□ 130)	(□ 130)	(□ 180)
S1	—	2	5	5	6
S2	25	30	40	68	70
S3	18	24.5	35.5	43	59
B	5	6	10	12	16
K1	4	6	8	10	14
K2	φ 11	φ 22	φ 28	φ 38	φ 50
K3	12.8	24.5	31.3	42	53.8
K4	φ 16	φ 32	φ 38	φ 48	φ 60
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.

NVS Reducer Specifications

Model No.	Code	Unit	Ratio	NVS062	NVS075	NVS100	NVS142	NVS180
Rated Output Torque (Nominal output torque)	T2N	Nm	3	59	165	216	625	1206
			4	51	146	208	555	1069
			5	48	155	333	618	1189
			6	45	150	315	583	1118
			7	45	142	309	573	1108
			8	44	141	305	553	1070
			9	44	140	293	551	1060
			10	43	138	291	549	1059
			12	45	150	315	583	1118
			14	45	142	309	573	1108
			16	44	141	305	553	1070
			18	44	140	293	551	1060
			20	43	138	291	549	1059
Max. Acceleration Torque	T2B	Nm	3 ~ 20	1.8 Times of Rated Output Torque				
Max. Output Torque	T2NOT	Nm	3 ~ 20	3 Times of Rated Output Torque				
Emergency Stop Torque								
Rated Input Speed	n1N	rpm	3 ~ 20	3000	3000	3000	3000	3000
Max. Input Speed	n1B	rpm	3 ~ 20	6000	6000	6000	5000	4000
Backlash Ps		arcmin	3 ~ 20	-	≤ 2	≤ 2	≤ 2	≤ 2
Backlash P0		arcmin	3 ~ 20	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
Backlash P1		arcmin	3 ~ 20	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
Backlash P2		arcmin	3 ~ 20	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
Torsional Rigidity		Nm/arcmin	3 ~ 20	8	15	27	60	150
Max. Radial Force	F2rB	N	3 ~ 20	2,240	4,150	8,760	12,750	17,860
Max. Axial Force	F2aB	N	3 ~ 20	1,920	3,780	7,500	10,840	15,180
Service Life	LH	hr	3 ~ 20	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
Efficiency	η	%	3 ~ 20	≥ 95				
Operating Temperature		°C	3 ~ 20	- 25° C ~ + 90° C				
Lubrication			3 ~ 20	Synthetic Grease				
Protection Class			3 ~ 20	IP65				
Mounting Position			3 ~ 20	Any				
Noise Level		dB	3 ~ 20	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76
Weight ±3%		Kg	3 ~ 20	2,7	7,5	10,9	25,6	57,9

Reducer Rotary Inertia

Ratio	NVS062	NVS075	NVS100	NVS142	NVS180
3	0,3	2,11	6,42	18,36	57,65
4	0,28	2,02	5,61	18,02	56,17
5	0,26	2,01	5,42	17,21	55,05
6	0,24	2	5,33	16,5	53,44
7	0,24	1,97	5,09	15,85	51,1
8	0,24	1,94	5,06	14,94	49,03
9	0,24	1,94	5,04	14,61	48,08
10	0,24	1,94	5,02	14,02	41,33
12	0,22	1,94	4,98	13,86	41,12
14	0,22	1,94	4,95	13,53	40,5
16	0,21	1,92	4,91	13,03	40,11
18	0,21	1,91	4,87	12,57	39,73
20	0,2	1,88	4,75	12,11	38,65

Features**Quiet operation**

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

**Model Selection of Speed Reducers** NRS Type

NAB090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NAB042, NAB060, NAB090, NAB115
NAB142, NAB180, NAB220, NAB240,
NAB280, NAB300

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

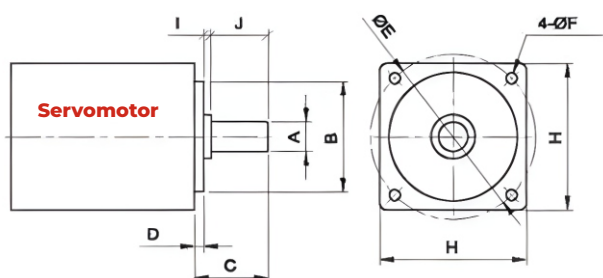
Ratio

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 should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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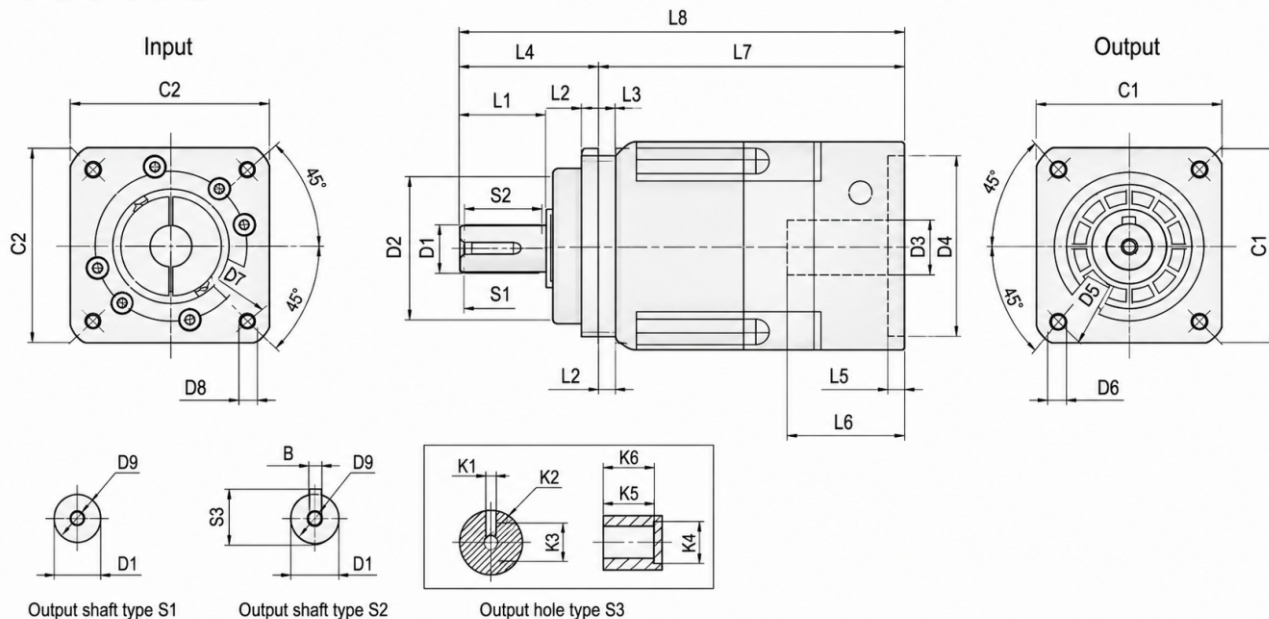


MODEL NAB

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10

32

Dimensions :



Unit:mm

Size	NAB042-L1	NAB060-L1	NAB090-L1	NAB115-L1	NAB142-L1	NAB180-L1	NAB220-L1
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 (30-70)	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 6.6	4-φ 9	4-φ 11	4-φ 13	4-φ 17
D7	φ 46 (22-70)	φ 70 (45-90)	φ 90 (70-145)	φ 145 (70-145)	φ 200 (90-215)	φ 200 (90-300)	φ 235 (200-300)
D8	(4-M3X8L)	(4-M5X10L)	(4-M6X12L)	(4-M8X25L)	(4-M12X30L)	(4-M12X30L)	(4-M12X30L)
D9	M4X0.7P	M5X0.8P	M8X1.25P	M12X1.75P	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	(4)	(5)	(7)	(11)	(7)	(7)	(12.5)
L6	30	34	45	65	67.5	85	105
L7	(65.5)	(78)	(99)	(135)	(150)	(182)	(226)
L8	(91.5)	(115)	(147)	(200)	(247)	(287)	(365)
C1	□ 42	□ 60	□ 90	□ 115	□ 142	□ 180	□ 220
C2	(□ 42)	(□ 60)	(□ 90)	(□ 130)	(□ 142)	(□ 180)	(□ 220)
S1	2	2	3	5	5	5	7
S2	16	25	32	40	65	70	90
S3	15	18	24.5	35	43	59	79
B	5	5	6	10	12	16	20
K1	—	4	6	8	10	14	16
K2	—	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	—	12.7	25	31.3	42	53.8	64.4
K4	—	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
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.

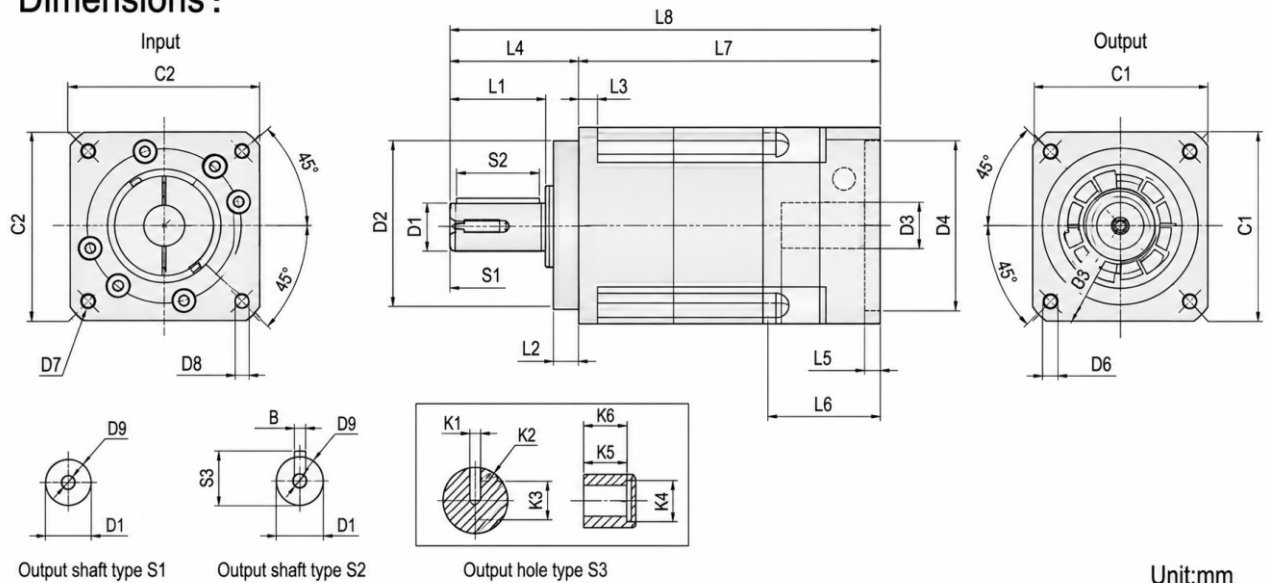
MODEL NAB

33

2- Stage : 10, 15, 20, 25, 30, 35, 40, 45, 50
60, 70, 80, 90, 100



Dimensions :



Size	NAB042-L2	NAB060-L2	NAB090-L2	NAB115-L2	NAB142-L2	NAB180-L2	NAB220-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	φ 24 (≤ 32)	φ 35 (≤ 42)	φ 38 (≤ 50)	φ 55 (≤ 55)
D4	φ 30 (30-50)	φ 50 (30-70)	φ 70	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 6.6	4-φ 9	4-φ 11	4-φ 13	4-φ 17
D7	φ 46 (22-70)	φ 70 (45-90)	φ 90	φ 145 (70-145)	φ 200 (90-215)	φ 200 (90-300)	φ 235 (200-300)
D8	(4-M3X8L)	(4-M5X10L)	(4-M6X12L)	(4-M8X25L)	(4-M12X30L)	(4-M12X30L)	(4-M12X30L)
D9	M4X0.7P	M5X0.8P	M8X1.25P	M12X1.75P	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	(4)	(5)	(7)	(11)	(7)	(7)	(12.5)
L6	25	34	45	65	67.5	85	105
L7	(93)	(117)	(144)	(161)	(196)	(232)	(277)
L8	(114)	(154)	(192)	(226)	(293)	(337)	(415)
C1	□ 42	□ 60	□ 90	□ 115	□ 142	□ 180	□ 220
C2	(□ 42)	(□ 60)	(□ 90)	(□ 130)	(□ 142)	(□ 180)	(□ 220)
S1	2	2	3	5	5	5	7
S2	16	25	32	40	65	70	90
S3	15	18	24.5	35	43	59	79
B	5	5	6	10	12	16	20
K1	—	4	6	8	10	14	16
K2	—	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	—	12.7	25	31.3	42	53.8	64.4
K4	—	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
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.

NVS Reducer Specifications

Specs	Unit	Stage	Ratio	NAB042	NAB060	NAB090	NAB115	NAB142	NAB180	NAB220	NAB242	NAB285	NAB330
Rated Output Torque / T2N	Nm	1	3	19	55	130	230	450	950	1220	1900	4230	8200
			4	20	55	160	290	580	1050	2000	3200	5800	10190
			5	21	58	159	330	650	1250	2100	2500	4400	7180
			6	16	48	120	310	600	1100	1350	—	—	—
			7	19	50	148	300	550	1100	1800	1830	3520	9800
			8	13	45	130	260	500	880	1600	1360	2595	4080
			9	12	40	100	220	350	588	1140	—	—	—
			10	15	40	100	208	342	520	1140	1150	1820	5000
		2	12	18	52	130	300	342	588	1220	1820	4230	8200
			15	18	53	130	280	450	950	1650	2420	5620	8200
			16	20	53	158	320	580	1200	2050	3390	6400	10800
			20	20	60	160	320	650	1200	2050	3390	6400	10800
			25	20	60	160	320	650	1200	2100	2650	4710	7550
			28	20	60	150	300	550	1100	1850	2650	4710	7550
			30	18	50	130	230	450	950	1600	1820	4230	7000
			35	20	60	160	390	650	1200	2100	2420	5620	9800
			40	18	50	140	290	542	1100	2000	2650	4710	7550
			50	22	60	160	290	650	1200	2100	2650	4710	7550
			70	19	50	140	280	600	1000	1800	1900	3520	5000
			80	17	43	120	230	500	880	1600	—	—	—
			100	14	40	100	260	342	520	1140	1200	1820	2500
Max. Output Torque / T2NOT ¹	Nm	1, 2	3~100	3 Times of Nominal Output Torque									
Rated Input Speed / n1N	rpm	1, 2	3~100	4000	4000	4000	3500	3000	2000	2000	1000	1000	1000
Max. Input Speed / n1B	rpm	1, 2	3~100	6000	6000	6000	5500	4500	4500	4000	1500	1500	1500
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	—	—	—
Standard Backlash P2	arcmin	1	3~10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 8	≤ 8	≤ 8
		2	12~100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 10	≤ 10	≤ 10
Torsional Rigidity	Nm/arcmin	1, 2	3~100	3	7	12	25	50	140	210	—	—	—
Max. Radial Force / F2rB ²	N	1, 2	3~100	780	1300	3200	6750	9400	14500	50000	55000	59000	62000
Max. Axial Force / F2aB ²	N	1, 2	3~100	330	700	1580	3300	4700	7200	28000	29000	30000	33000
Service Life	hr	1, 2	3~100	21000h									
Efficiency / η	%	1	3~10	≥ 97%									
		2	12~100	≥ 94%									
Weight	kg	1	3~10	0,5	1,3	3,7	7,8	15	29	52	71	113	245
		2	12~100	0,8	1,48	4,1	9,6	18,9	33	66	75	136	290
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	≤ 63	≤ 63	≤ 63	≤ 65	≤ 65	≤ 70	≤ 70	≤ 75	≤ 75	≤ 75

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	NAB042	NAB060	NAB090	NAB115	NAB142	NAB180	NAB220	NAB242	NAB285	NAB330
Moment of Inertia	kg.cm ²	1	3	0,03	0,16	0,61	3,25	9,21	28,98	69,61	70,21	73,29	75,23
			4	0,03	0,14	0,48	2,74	7,54	23,67	54,37	58,21	70,27	73,37
			5	0,03	0,13	0,47	2,71	7,42	23,29	53,27	59,27	70,61	73,29
			6	0,03	0,13	0,45	2,65	7,25	22,75	51,72	53,37	55,72	58,75
			7	0,03	0,13	0,45	2,62	7,14	22,48	50,97	51,23	53,97	56,61
			8	0,03	0,13	0,44	2,58	7,07	22,59	50,84	51,72	53,84	56,24
			9	0,03	0,13	0,44	2,57	7,04	22,53	50,63	55,27	58,63	60,54
			10	0,03	0,13	0,44	2,57	7,03	22,51	50,56	55,27	58,56	60,72
		2	12~40	0,03	0,03	0,13	0,47	2,71	7,42	23,29	29,2	31,29	24,29
			50~100	0,03	0,03	0,13	0,44	2,57	7,03	22,51	28,2	30,51	35,51

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.

PRECISION PLANETARY GEARBOX

NAR



Features

Quiet operation

Helical gears are used to achieve smooth and quiet operation.

High precision

The backlash is less than 3 arcmin and the positioning is accurate.

High rigidity & torque

The use of integral ball bearings greatly improves the rigidity and torque.

Methods of flange and connector

It can be installed on any motor in the world.

No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

Model Selection of Speed Reducers NRS Type

NAR090 -- 10 -- S1 -- P1 / Motor

Reducer Model

NAR042, NAR060, NAR090, NAR115
NAR142, NAR180, NAR220, NAR240,
NAR280, NAR300

Output Shaft Keyway

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

Motor Model

Motor Manufacturer & Model

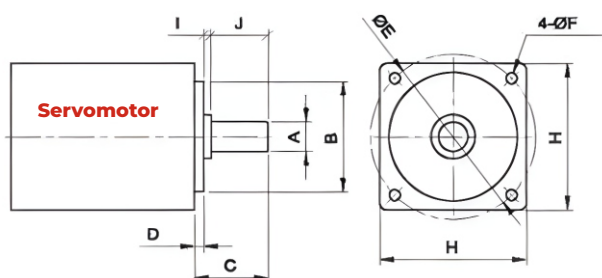
Ratio

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

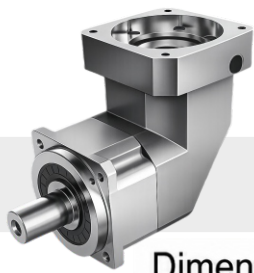
The gearbox matching motor should be confirmed according to the following mounting dimensions.



A	B	C	D	E	F	H	I	J

Naming Scheme

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.
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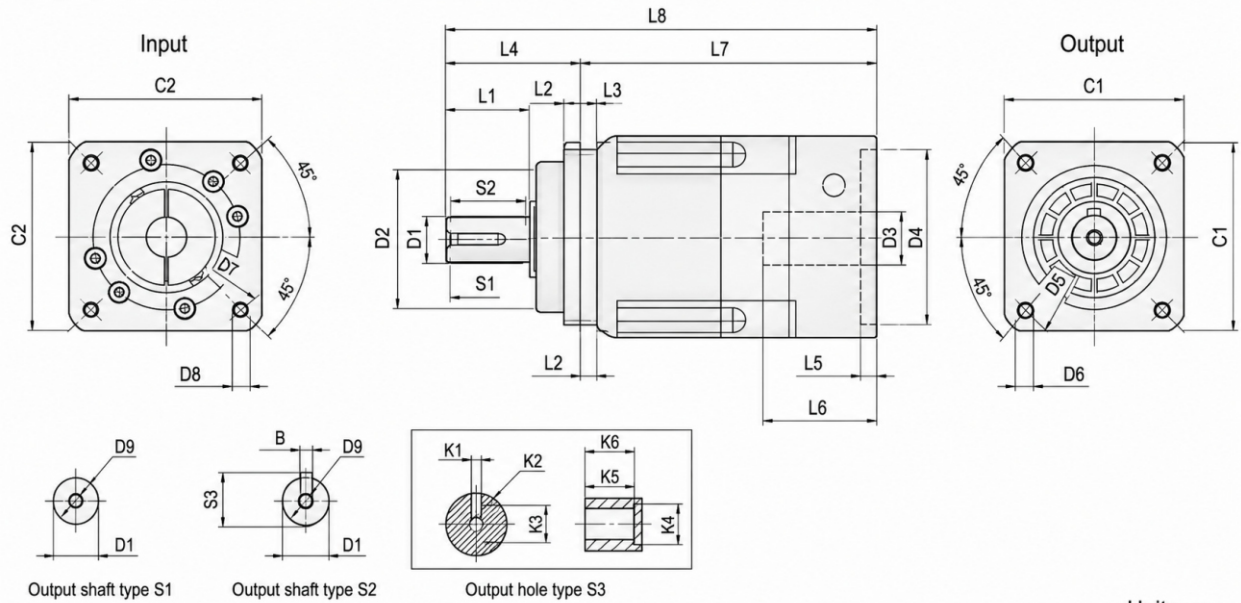


MODEL NAR

1- Stage : 3, 4, 5, 6, 7, 8, 9, 10

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Dimensions :



Unit:mm

Size	NAR042-L1	NAR060-L1	NAR090-L1	NAR115-L1	NAR142-L1	NAR180-L1	NAR220-L1
+ A2:A18	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 (30-70)	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 6.6	4-φ 9	4-φ 11	4-φ 13	4-φ 17
D7	φ 46 (22-70)	φ 70 (45-90)	φ 90 (70-145)	φ 145 (70-145)	φ 200 (90-215)	φ 200 (90-300)	φ 235 (200-300)
D8	(4-M3X8L)	(4-M5X10L)	(4-M6X12L)	(4-M8X25L)	(4-M12X30L)	(4-M12X30L)	(4-M12X30L)
D9	M4X0.7P	M5X0.8P	M8X1.25P	M12X1.75P	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	117	175	227	255	289	346
L6	(122)	(154)	(223)	(292)	(352)	(394)	(484)
L7	(3.5)	(5)	(5)	(11)	(14)	(15)	(7)
L8	(30)	(34)	(44)	(60)	(81)	(85)	(85)
L9	(69.5)	(81.5)	(107.5)	(134)	(165)	(213.5)	(268.5)
L10	(95.5)	(110.5)	(158)	(199)	(230)	(303.5)	(378.5)
C1	□ 42	□ 60	□ 90	□ 115	□ 142	□ 180	□ 220
C2	(□ 42)	(□ 60)	(□ 90)	(□ 130)	(□ 142)	(□ 180)	(□ 220)
S1	2	2	2	5	5	5	7
S2	16	25	32	40	65	70	90
S3	15	18	24.5	35	43	59	79
B	5	5	6	10	12	16	20
K1	—	4	6	8	10	14	16
K2	—	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	—	12.7	25	31.3	42	53.8	64.4
K4	—	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
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.

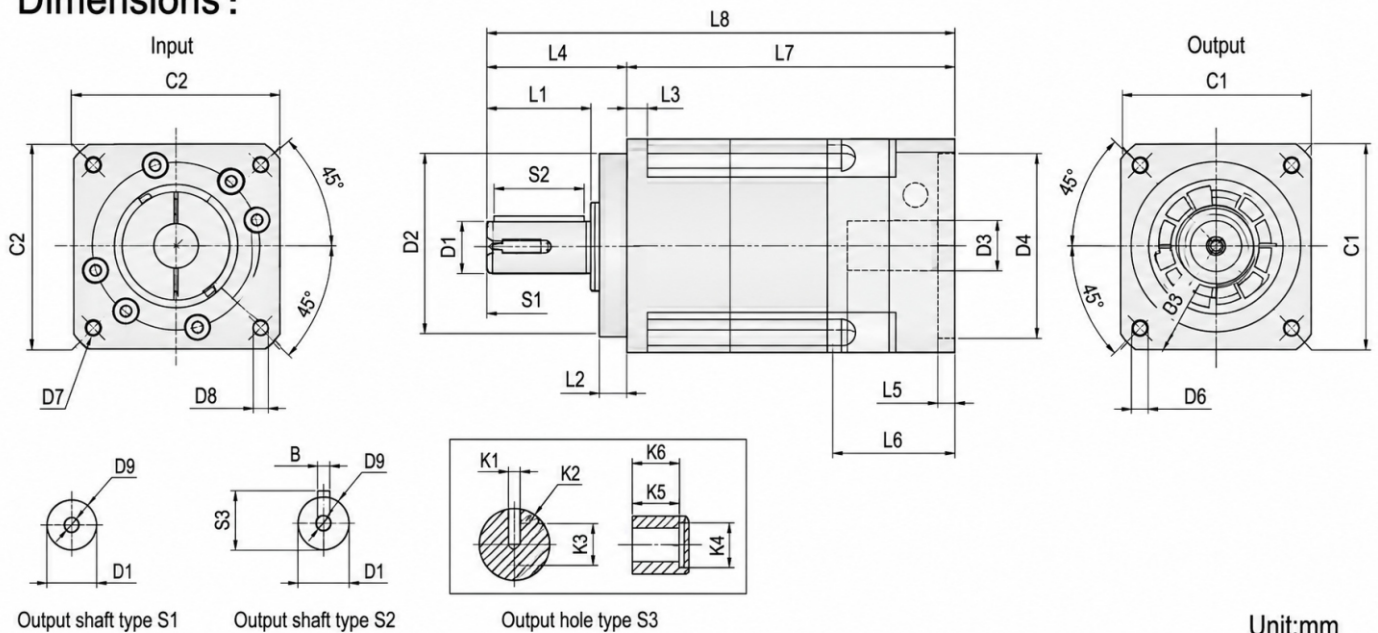
MODEL NAR

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2- Stage : 10, 15, 20, 25, 30, 35, 40, 45, 50
60, 70, 80, 90, 100



Dimensions :



Size	NAR042-L2	NAR060-L2	NAR090-L2	NAR115-L2	NAR142-L2	NAR180-L2	NAR220-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 14	φ 24 (≤ 32)	φ 35 (≤ 42)	φ 38 (≤ 50)	φ 55 (≤ 55)
D4	φ 30 (30-50)	φ 50 (30-70)	φ 50	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 6.6	4-φ 9	4-φ 11	4-φ 13	4-φ 17
D7	φ 46 (22-70)	φ 70 (45-90)	φ 70	φ 145 (70-145)	φ 200 (90-215)	φ 200 (90-300)	φ 235 (200-300)
D8	(4-M3X8L)	(4-M5X10L)	(4-M5X12L)	(4-M8X25L)	(4-M12X30L)	(4-M12X30L)	(4-M12X30L)
D9	M4X0.7P	M5X0.8P	M8X1.25P	M12X1.75P	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	134	157	224	282	322	383
L6	139	171	205	(292)	(378)	(427)	(521)
L7	(3.5)	(5)	(5)	(11)	(14)	(15)	(7)
L8	(30)	(34)	(44)	(60)	(81)	(85)	(85)
L9	(69.5)	(81.5)	(107.5)	(134)	(165)	(213.5)	(268.5)
L10	(90.5)	(111.5)	(152.5)	(191.5)	(236)	(303.5)	(378.5)
C1	□ 42	□ 60	□ 90	□ 115	□ 142	□ 180	□ 220
C2	(□ 42)	(□ 60)	(□ 90)	(□ 130)	(□ 142)	(□ 180)	(□ 220)
S1	2	2	2	5	5	5	7
S2	16	25	32	40	65	70	90
S3	15	18	24.5	35	43	59	79
B	5	5	6	10	12	16	20
K1	—	4	6	8	10	14	16
K2	—	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	—	12.7	25	31.3	42	53.8	64.4
K4	—	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
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.

NVS Reducer Specifications

Specs	Unit	Stage	Ratio	NAR042	NAR060	NAR090	NAR115	NAR142	NAR180	NAR220
Rated Output Torque / T2N	Nm	1	3	19	55	130	230	450	950	1220
			4	20	55	160	290	580	1050	2000
			5	21	58	159	330	650	1250	2100
			6	16	48	120	310	600	1100	1350
			7	19	50	148	300	550	1100	1800
			8	13	45	130	260	500	880	1600
			9	12	40	100	220	350	588	1140
			10	15	40	100	208	342	520	1140
			14	18	50	130	300	550	1100	1800
			20	15	40	130	208	342	520	1140
		2	15	20	55	130	320	650	1200	2050
			20	20	60	160	320	650	1200	2100
			25	20	60	150	300	550	1100	1850
			30	18	50	130	230	450	950	1600
			35	20	60	160	390	650	1200	2100
			40	18	50	140	290	542	1100	2000
			50	18	60	160	290	650	1200	2100
			70	16	50	140	280	600	1000	1800
			80	10	43	120	230	500	880	1600
			100	10	40	100	260	342	520	1140
			120	—	—	130	310	500	1100	1900
			140	—	—	130	300	530	1100	1800
			160	—	—	120	260	520	1000	1600
			180	—	—	100	230	450	900	1500
			200	—	—	100	230	450	900	1500
Max. Output Torque / T2NOT ¹	Nm	1, 2	3~200	3 Times of Nominal Output Torque						
Rated Input Speed / n1N	rpm	1, 2	3~200	3000	3000	3000	3000	2500	2000	2000
Max. Input Speed / n1B	rpm	1, 2	3~200	6000	6000	6000	5500	4500	4500	4000
Precision Backlash P0	arcmin	1	3~20	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
		2	15~200	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Precision Backlash P1	arcmin	1	3~20	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
		2	15~200	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Standard Backlash P2	arcmin	1	3~20	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
		2	15~200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Torsional Rigidity	Nm/arcmin	1, 2	3~200	3	6	14	25	56	140	220
Max. Radial Force / F2rB ²	N	1, 2	3~200	780	1300	3200	6750	9400	14500	50000
Max. Axial Force / F2aB 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	NAR042	NAR060	NAR090	NAR115	NAR142	NAR180	NAR220
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.

NEXA

Precision in Motion



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