



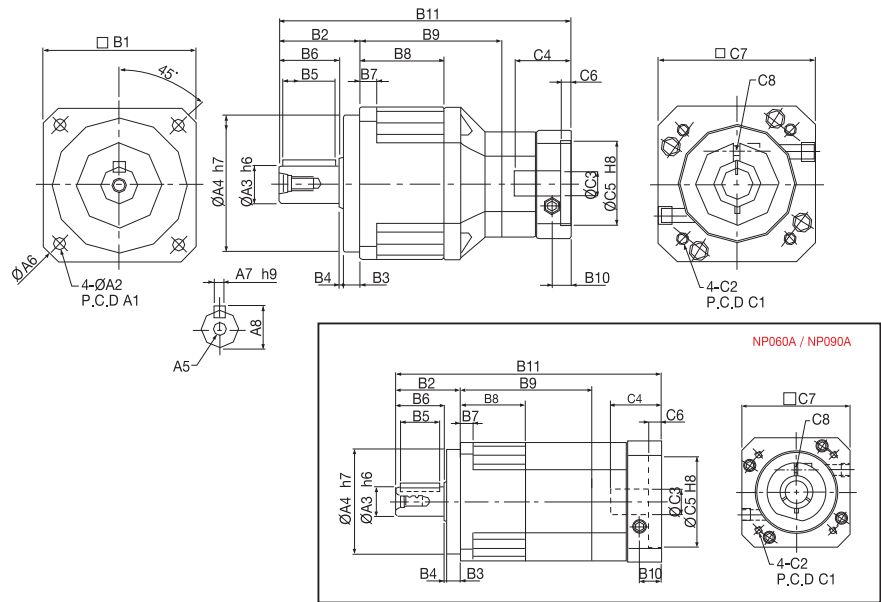
Dimensions



Features

MODEL : NP Series

(2stage reducer, Reduction ratio I = 15,20,25,30,35,40,45,50,60,70,80,90,100)



Unit : mm

CODE		MODEL	042	060	060A	090	090A	115	142	180	220
A	A1		50	70		100		130	165	215	250
	A2		3,4	5,5		6,6		9	11	13	17
	A3		13	16		22		32	40	55	75
	A4		19,5	28,5		36,5		51	79	82	105
	A5		35	50		80		110	130	160	180
	A6		M4 X P0,7	M5 X P0,8		M8		M12	M16	M20	M20
	A7		16	25		32		40	65	70	90
	A8		5	5		6		10	12	16	20
	A9		15	18		24,5		35	43	59	79,5
B ²⁾	B1		42	60		90		115	142	180	220
	B2		26	37		48		65	97	105	138
	B3		5,5	7		10		12	15	20	30
	B4		1	1,5		1,5		2	3	3	3
	B5		4	6		8		10	12	15	20
	B6		31,5	37		49		61	72	84	95
	B7*		41,5	41,5	54	54	56	56	82	91	123
	B8*		61,5	63,5	71	84	94	102	131	149	177
	B9		56	80		116		152	185	240	292
	B10*		9	9	14	14	12	12	15	17,5	22,5
	B11*		129	142	162	186	198	223	310	345	438
C ²⁾	C1*		46	46	70	70	100	100	130	165	215
	C2*		M4 X P0,7	M4 X P0,7	M5 X P0,8	M5 X P0,8	M6	M6	M8	M10	M12
	C3* ¹⁾		≤11(12)	≤11(12)	≤14(16)	≤14(16)	≤19(22,24)	≤19(22,24)	≤28(32)	≤38	≤48
	C4*		25	25	34	34	40	40	50	60	85
	C5*		30	30	50	50	80	80	110	130	180
	C6*		3,5	3,5	8	8	4	4	5	6	6
	C7*		42	42	60	60	90	90	115	142	190
	C8*		M3 X P0,5	M3 X P0,5	M5 X P0,8	M5 X P0,8	M6	M6	M8	M10	M10

1. () on request, 2. * : applied according to motor sizes
3. Dimensions are subject to be changed for improvement. Please contact NARA DRIVE for more information,



NP Series

- Helical gear applied for low noise and high efficiency
- Flange type precision reducer



NPR Series

- Helical gear applied for low noise and high efficiency
- Angular type precision reducer
- For space saving



NF Series

- Helical gear applied for low noise and high efficiency
- Flange type precision reducer



NFR Series

- Helical gear applied for low noise and high efficiency
- Angular flanged precision reducer
- For space saving

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*Dimensions are subject to alteration without notice.

NARA DRIVE
MOTION & CONTROL

NP Series

For servo motor and stepping motor

PRECISION PLANETARY
GEARHEADS

Backlash 3min / 5min / 10min



NARA DRIVE
www.naradr.com





LOW NOISE

Low noise is performed by using helical planetary reduction gear for low noise and smooth operation.

HIGH STRENGTH

High strength is achieved with ring gear directly toothed at housing, and compact size also achieved.

HIGH PRECISION

5min or 3min high precision backlash makes precise position control and performs the best operation of servo motor.

LONG LIFE

More than 20,000 operating hours and maintenance free.

EASY MOUNTING

Easy mounting for all kinds of servo motors with using set collars and bushes.

HELICAL GEAR APPLIED

For servo motors, high torque and smooth, silent operation are achieved by helical gear with higher tooth contact ratio than spur gear.

NP Series

NP

model

115

Frame
size

015

Reduction
ratio

S1:무
S2:유

Key

P1

Backlash

MOTOR

Motor applied

Model No	Unit	Stage	Ratio	NP042	NP060	NP060A	NP090	NP090A	NP115	NP142	NP180	NP220
Nominal Output Torque T _{2N}	Nm	1	3	20	55	-	130	-	208	342	588	1140
			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	-	230	450	900	1500
			15	20	55	55	130	130	208	342	588	1140
			20	19	50	50	140	140	290	542	1050	1700
			25	22	60	60	160	160	330	650	1200	2000
			30	20	55	55	150	150	310	600	1100	1900
			35	19	50	50	140	140	300	550	1100	1800
			40	17	45	45	120	120	260	500	1000	1600
			45	14	40	40	100	100	230	450	900	1500
			50	22	60	60	160	160	330	650	1200	2000
			60	20	55	55	150	150	310	600	1100	1900
			70	19	50	50	140	140	300	550	1100	1800
			80	17	45	45	120	120	260	500	1000	1600
			90	14	40	40	100	100	230	450	900	1500
			100	14	40	40	100	100	230	450	900	1500
Emergency Stop Torque T _{2Nor} ⁴	Nm	1,2	3~100	3times of nominal output torque								
Nominal Input Speed n _{IN}	rpm	1,2	3~100	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max Input Speed n _{Imax}	rpm	1,2	3~100	6,000	6,000	5,000	5,000	5,000	5,000	5,000	5,000	4,000
Precision Backlash P ₁	arcmin	1	3~10	≤3	≤3	-	≤3	-	≤3	≤3	≤3	≤3
		2	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Low Backlash P ₂	arcmin	1	3~10	≤5	≤5	-	≤5	-	≤5	≤5	≤5	≤5
		2	15~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Standard Backlash P ₃	arcmin	1	3~10	≤10	≤10	-	≤10	-	≤10	≤10	≤10	≤10
		2	15~100	≤12	≤12	≤12	≤12	≤12	≤12	≤12	≤12	≤12
Max. Radial Load F _{ri} ²	N	1,2	3~100	710	1,210	1,210	2,710	2,710	5,490	7,710	12,260	27,140
Max. Axial Load F _{ai} ²	N	1,2	3~100	470	770	770	1,550	1,550	3,200	4,830	7,110	13,560
Lifetime L _h	hr	1,2	3~100	20000 ⁵								
Noise Level(n1=3000rpm,No Load)	dB(A)	1,2	3~100	≤56	≤58	≤58	≤60	≤60	≤63	≤65	≤67	≤70
Efficiency η	%	1	3~10	≥97								
		2	15~100	≥94								
Weight	kg	1	3~10	0,5	1,3	-	3,7	-	7,7	14,0	27,3	46,7
		2	15~100	0,8	1,5	1,9	5,1	5,4	8,7	17,3	31,8	57,0
Operating Temperature ³	℃	1,2	3~100	-10℃ ~ +90℃								
Lubrication		1,2	3~100	Grease								
Degree of Protection		1,2	3~100	IP65								
Mounting Position		1,2	3~100	All directions								

- Ratio=Nin/Nout
- Ambient temperature 0~40℃
- Service life 10,000hrs (S1: Continuous operating condition)

* Specifications are subject to be changed for improvement, Please contact NARADRVIE for more information.

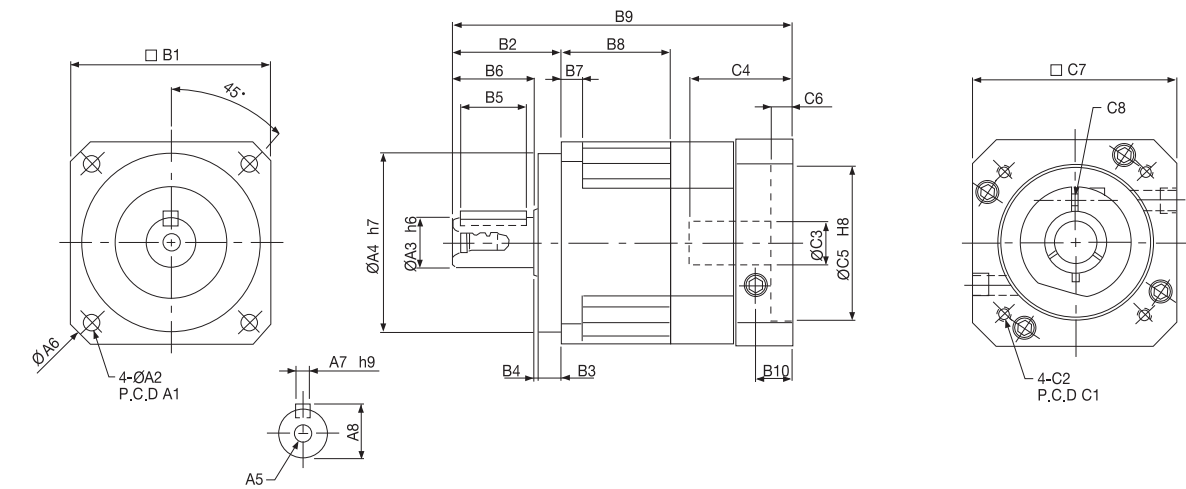
NP Series Inertia

Model No	Unit	Stage	Ratio	NP042	NP060	NP060A	NP090	NP090A	NP115	NP142	NP180	NP220
Mass Moments of Inertia J _r	kg·cm ²	1	3	0,051	0,260	-	1,139	-	4,782	12,0	35,1	71,1
			4	0,042	0,213	-	0,894	-	3,979	9,7	27,6	52,5
			5	0,038	0,194	-	0,885	-	3,890	9,4	26,9	50,8
			6	0,035	0,182	-	0,810	-	3,651	8,7	24,6	45,8
			7	0,034	0,178	-	0,782	-	3,545	8,4	23,3	42,5
			8	0,034	0,174	-	0,753	-	3,440	8,1	22,5	40,6
			9	0,033	0,171	-	0,736	-	3,379	7,9	22,0	39,2
			10	0,033	0,170	-	0,731	-	3,361	7,9	22,1	38,7
			15	0,038	0,041	0,197	0,209	0,896	0,941	4,1	9,8	27,9
			20	0,037	0,039	0,195	0,200	0,886	0,909	4,0	9,5	27,2
			25	0,037	0,039	0,194	0,199	0,885	0,906	3,9	9,5	27,1
			30	0,037	0,038	0,194	0,196	0,883	0,896	3,9	9,4	26,9
			35	0,037	0,038	0,194	0,195	0,881	0,892	3,9	9,4	26,8
			40	0,037	0,038	0,194	0,194	0,880	0,888	3,9	9,3	26,7
			45	0,037	0,038	0,193	0,193	0,880	0,886	3,9	9,3	26,6
			50	0,033	0,033	0,170	0,172	0,731	0,736	3,4	7,9	22,1
			60	0,033	0,033	0,170	0,171	0,730	0,733	3,4	7,9	22,1
			70	0,033	0,033	0,170	0,171	0,730	0,732	3,4	7,9	22,1
			80	0,033	0,033	0,170	0,171	0,729	0,731	3,4	7,9	22,0
			90	0,033	0,033	0,170	0,171	0,726	0,731	3,4	7,9	22,0
			100	0,033	0,033	0,170	0,171	0,729	0,731	3,4	7,9	22,0

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MODEL : NP Series

(1stage reducer, Reduction ratio I = 3,4,5,6,7,8,9,10)



Unit : mm

CODE	MODEL	042	060	090	115	142	180	220
A	A1	50	70	100	130	165	215	250
	A2	3,4	5,5	6,6	9	11	13	17
	A3	13	16	22	32	40	55	75
	A4	35	50	80	110	130	160	180
	A5	M4 X P0,7	M5 X P0,8	M8 X P1,25	M12 X P1,75	M16 X P2,0	M20 x P2,5	M20 x P2,5
	A6	56	80	116	152	185	240	292
	A7	5	5	6	10	12	16	20
B	A8	15	18	24,5	35	43	59	79,5
	B1	42	60	90	115	142	180	220
	B2	26	37	48	65	97	105	138
	B3	5,5	7	10	12	15	20	30
	B4	1	1,5	1,5	2	3	3	3
	B5	16	25	32	40	65	70	90
	B6	19,5	28,5	36,5	51	79	82	105
C	B7	4	6	8	10	12	15	20
	B8	31,5	41	49	66	79	94	103
	B9 *	99	132	153	213	267	322	406
	B10 *	9	14	12	15	17,5	22,5	53,5
	C1*	46	70	100	130	165	215	235
	C2 *	M4 X P0,7	M5 X P0,8	M6	M8	M10	M12	M12
	C3 *	≤11(12)	≤14(16)	≤19(22,24)	≤28(32)	≤38	≤48	≤55
	C4 *	25	34	40	50	60	85	116
	C5 *	30	50	80	110	130	180	200
	C6 *	3,5	8	4	5	6	6	6
	C7 *	42	60	90	115	142	190	220
	C8 *	M3 X P0,5	M5 X P0,8	M6	M8	M10	M10	M12

- () on request, 2. * : applied according to motor sizes
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