

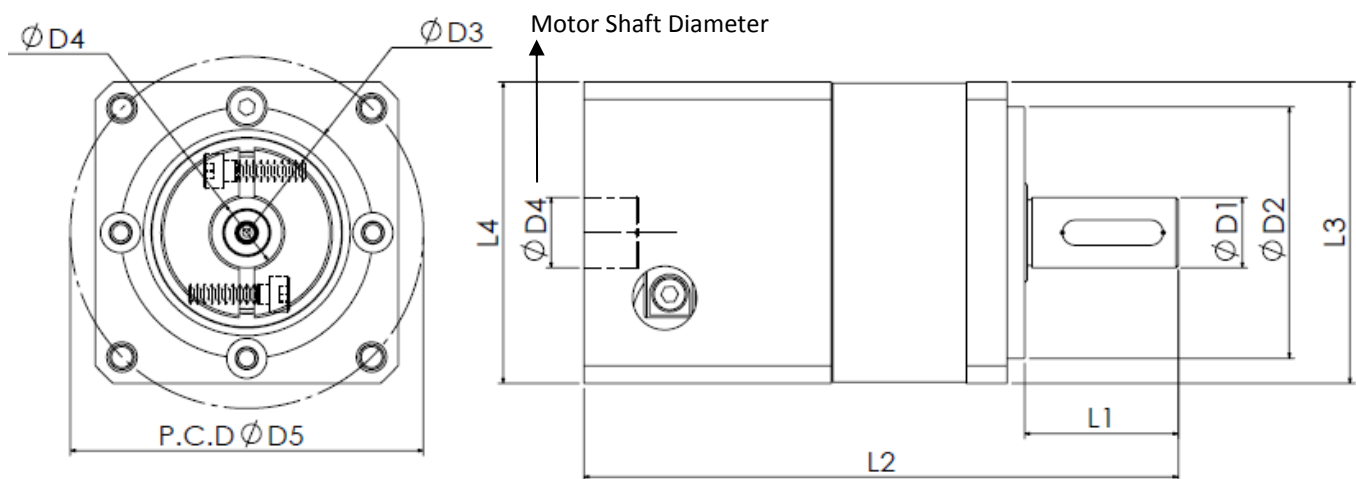
GNP Low-backlash Planetary Gearboxes

FEATURES

- Flange-style output face – can be mounted in your machine from the motor-side. The output housing is aluminum ⁽¹⁾
- Alloy steel output shaft is supported by two deep groove ball bearings for improved rigidity
- Alloy steel center ring has accurately machined integral ring gear
- Hardened and ground planet gears rotate on needle bearings and large hardened shafts
- Input pinion is outboard supported (not cantilevered) in a ball bearing for rigidity
- Input coupling has two opposing screws for secure connection to servo motor shaft
- Motor-input housing is anodized aluminum with a lubrication seal for the input coupling
- Precision backlash of 1 arc-min max. for one stage (5/6 arc-min as standard)
- Customised gearboxes with special ratio available upon request



MECHANICAL DIMENSIONS



Motor input view

Dimensions (in mm)	GNP40	GNP60	GNP90	GNP120	GNP150
$\phi D1$ keyway std.	13	14 (3)	22	32	40
$\phi D2$ standard	35	50	80	110	130
$\phi D3$ ⁽²⁾	40	60	60-80	80-110	110-130
$\phi D4$ ⁽²⁾	5~9	6.35~14	11~24	19~35	20~38
$\phi D5$ ⁽²⁾ motor side	63	75	75-100	100-130	130-165
L1 standard	20.50	30.50	38	53	75
L2 one stage	95.50	124.85	146.90	209.70/ 219.70	282
L2 two stage	113	144.85	181.90	260.75 / 265.75	310.2
□L3 standard	42	60	90	115	142
□L4 standard	57	72	92	113/ 130	142

(1) The output housing of size GNP 90 is alloy steel.

(2) Typical value. This dimension is machined for user's specified servo motor. Drawings are available in PDF & STEP format upon request.

(3) Option: $\phi 16$

TECHNICAL SPECIFICATIONS

Performances		Stages	Ratio ⁽¹⁾	GNP40	GNP60	GNP90	GNP120	GNP150
Nominal Output Torque	Lb-in/ Nm	1	3	-	130/ 14.7	563/ 63.7	1127/ 127.4	2168/ 245
			4	86.7/ 9.8	173/ 19.6	650/ 73.5	1301/ 147	3726/ 421
			5	95/ 10.8	182/ 20.6	693/ 78.4	1500/ 169.5	3903/ 441
			7	86.7/ 9.8	164/ 18.6	607/ 68.6	1127/ 127.4	3292/ 372
			9	-	-	-	1040/ 117.6	-
			10	77.8/ 8.8	147/ 16.7	520/ 58.8	693/ 78.4	2425/ 274
		2	9	-	130/14.7	563.8/63.7	1127/ 127.4	2168/245
			12	86.7/9.8	130/14.7	563.8/63.7	1127/ 127.4	2168/245
			15	95.4/10.78	130/14.7	563.8/63.7	1127/ 127.4	2168/245
			16	86.7/9.8	173/19.6	650/73.5	1301/ 147	3729.7/421.4
			20	86.7/9.8	173.5/19.6	650.5/73.5	1301/ 147	3729.7/421.4
			21	86.7/9.8	130/14.7	563.8/63.7	1127/ 127.4	2168/245
			25	95.4/10.78	182/20.6	693/78.4	1500/ 169.5	3903/441
			28	86.7/9.8	173/19.6	650/73.5	1301/ 147	3729.7/421.4
			30	78.1/8.82	130/14.7	563.8/63.7	1127/ 127.4	2168/245
			35	95.4/10.78	182/20.6	693/78.4	1500/ 169.5	3903/441
			40	86.7/9.8	173.5/19.6	650/73.5	1301/ 147	3729.7/421.4
			49	86.7/9.8	164/18.6	607/ 68.6	1127/ 127.4	3296/372.4
			50	95.4/10.78	182/20.6	693/78.4	1500/ 169.5	3903/441
			70	86.7/9.8	164/18.6	607/ 68.6	1127/ 127.4	3296/372.4
100	78.1/8.82	147/ 16.7	520/58.8	693/ 78.4	2428.6/274.4			
Max Acceleration Torque	Lb-in/ Nm	1,2	3~100	3 times Nominal Output Torque				
Emergency Stop Torque ⁽²⁾	Lb-in/ Nm	1,2	3~100	3.4 times Nominal Output Torque				
Permissible Input Speed ⁽³⁾	rpm	1,2	3~100	3000	3000	3000	3000	3000
Standard Backlash (Max.) ⁽⁴⁾	Arc-mins	1	3~10	20	5	5	6	6
		2	9~100	30	10	9	11	11
Max. radial force (mid shaft)	Lbs/ N	1,2	3~100	154/ 686	242/ 1078	777/ 3459	1024/ 4557	1378/ 6134
Max. axial force	Lbs/ N	1,2	3~100	77/ 343	124/ 539	386/ 1729	512/ 2278	669/ 3067
Allowable Input Shaft Diameter	mm	1	3~10	5~9	6.35~14	11~24	19~35	20~38
Rated life ⁽⁵⁾	H	1,2	3~100	>10,000				
Operating Temperature Range	°C	1,2	3~100	-10°C to +40°C ambient -- 90°C max operating case temperature				
Noise level	dB (A)	1	3~10	62	62	65	65	70
		2	9~100	62	62	65	65	65
Lubrication		1,2	3~100	Lubricated for life (Synthetic Grease)				
Protection class		1,2	3~100	IP54				
Gearhead Inertia	kg-cm ²	1	3~10	0.049	0.127	1.247	2.274	10.19
		2	9~100	0.049	0.127	1.247	1.247	2.274
Efficiency at full load	%	1,2	3~100	95 % for 1 stage and 90 % for 2 stage				
Weight	Kg	1	3~10	0.4	1.1	3.3	6.8	13.8
		2	9~100	0.5	1.3	4.5	8.3	14
		3	100~1000	0.6	1.5	5.5	8.8	15
No-load running torque	Lb-in/ Nm	1	3~10	0.44/ 0.05	2.3/ 0.3	5.3/ 0.6	10.7/ 1.2	12.8/ 1.45
		2	9~100	0.43/0.05	2.3/ 0.3	5.3/ 0.6	5.3/ 0.6	10.7/ 1.2

Notes:

- (1) Please contact us for stage 3 ratios (which can reach up to 1000:1)
- (2) For 1000 times max during life of gearhead.
- (3) For input speeds above 3000rpm, please consult us, with application details
- (4) Low backlash of **1 arc-min** for one-stage and **2 arc-mins** for two-stage gearboxes available, but the permissible input speed drops down to 1500rpm (GNP40/GNP60/GNP90) and 800rpm (GNP120/GNP150). Please contact us for more information.
- (5) At permissible input speed and Nominal Output Torque

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