



# Precision Servo Gearboxes

SureGear® Servo Gearbox Selection											
SureServoMotor (SV and SV2)	Gear Ratio	SureGear Gearbox	Frame Size (mm)	Motor Nominal Output Torque		Combo Nominal Output Torque		Nominal Output Speed (rpm)	Max Output Speed (rpm)	Available Load Inertia @ 5:1 Mismatch *	
				N-m	lb-in	N-m	lb-in			kg-cm2	lb-in-s2
SV2L-201(x)	5:1	<a href="#">PGD047-05A1</a>	47	0.32	2.83	1.52	13.44	600	1200.00	6.76	0.006
		<a href="#">PGA050-05A1</a>	50							6.94	0.006
		<a href="#">PGA070-05A1</a>	70							5.91	0.005
		<a href="#">PGB070-05A1</a>	70							1.59**	0.001**
	10:1	<a href="#">PGD047-10A1</a>	47			3.04	26.89	300	600.00	28.15	0.025
		<a href="#">PGA050-10A1</a>	50							28.35	0.025
		<a href="#">PGA070-10A1</a>	70							25.75	0.023
		<a href="#">PGB070-10A1</a>	70							2.98	0.007**
	15:1	<a href="#">PGA050-15A1</a>	50			4.32	38.21	200	400.00	62.66	0.055
		<a href="#">PGA070-15A1</a>	70							58.16	0.051
		<a href="#">PGB070-15A1</a>	70							4.22	0.048
	25:1	<a href="#">PGD047-25A1</a>	47			7.20	63.68	120	240.00	174.69	0.155
		<a href="#">PGA050-25A1</a>	50							174.69	0.155
		<a href="#">PGA070-25A1</a>	70							162.81	0.144
		<a href="#">PGB070-25A1</a>	70							7.04	0.134
	50:1	<a href="#">PGD064-50A1</a>	64			14.40	127.35	60	120.00	661.25	0.585
SV2L-202(x)	5:1	<a href="#">PGD064-05A2</a>	64	0.64	5.7	3.04	27.08	600	1200.00	28.75	0.025
		<a href="#">PGA070-05A2</a>	70							29.33	0.026
		<a href="#">PGB070-05A2</a>	70							2.98	0.022
	10:1	<a href="#">PGD064-10A2</a>	64			6.08	54.15	300	600.00	118.80	0.105
		<a href="#">PGA070-10A2</a>	70							119.40	0.106
		<a href="#">PGB070-10A2</a>	70							5.95	0.090
	15:1	<a href="#">PGA070-15A2</a>	70			8.64	76.95	200	400.00	268.88	0.238
		<a href="#">PGB070-15A2</a>	70							264.83	0.234
		<a href="#">PGB090-15A2</a>	90							8.45	0.181
	25:1	<a href="#">PGD064-25A2</a>	64			14.40	128.25	120	240.00	747.50	0.662
		<a href="#">PGA070-25A2</a>	70							748.13	0.662
		<a href="#">PGB070-25A2</a>	70							14.08	0.652
		<a href="#">PGB090-25A2</a>	90							581.25	0.514
		<a href="#">PGD090-25A2</a>	90							14.40	0.620
	50:1	<a href="#">PGD090-50A2</a>	90			28.80	256.50	60	120.00	2875.00	2.544
		<a href="#">PGD110-50A2</a>	110							2125.00	1.881
SV2L-204(x)	5:1	<a href="#">PGD064-05A2</a>	64	1.27	11.2	6.03	53.20	600	1200.00	53.75	0.048
		<a href="#">PGA070-05A2</a>	70							54.33	0.048
		<a href="#">PGB070-05A2</a>	70							5.91	0.044
	10:1	<a href="#">PGD064-10A2</a>	64			12.07	106.40	300	600.00	218.80	0.194
		<a href="#">PGA070-10A2</a>	70							219.40	0.194
		<a href="#">PGB070-10A2</a>	70							11.81	0.179
	15:1	<a href="#">PGA070-15A2</a>	70			17.15	151.20	200	400.00	493.88	0.437
		<a href="#">PGB070-15A2</a>	70							489.83	0.433
		<a href="#">PGB090-15A2</a>	90							16.76	0.380
	25:1	<a href="#">PGD064-25A2</a>	64			28.58	252.00	120	240.00	1372.50	1.215
		<a href="#">PGA070-25A2</a>	70							1373.13	1.215
		<a href="#">PGB070-25A2</a>	70							27.94	1.205
		<a href="#">PGB090-25A2</a>	90							1206.25	1.068
	50:1	<a href="#">PGD090-25A2</a>	90			28.58	252.00	120	240.00	1325.00	1.173
		<a href="#">PGD090-50A2</a>	90							57.15	4.757
		<a href="#">PGD110-50A2</a>	110							57.15	4.093

\* Available load inertia is calculated based on servo motor inertia using the formula: Available Inertia = (5 x Motor Inertia – Gearbox Inertia) x (Gear Ratio)2 A 5:1 inertia mismatch is a good target for design purposes. Systems with lower or higher mismatch may be possible, depending on operating conditions.

\*\* This gearbox is NOT a suitable choice at a 5:1 mismatch. If inertia balancing is a selection criteria for your end use, please use a mismatch of 8:1 to 10:1.



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Sure Servo Motor	Gear Ratio	SureGear Gearbox	Frame Size (mm)	Motor Nominal Output Torque		Combo Nominal Output Torque		Nominal Output Speed (rpm)	Max Output Speed (rpm)	Available Load Inertia @ 5:1 Mismatch *	
				N-m	lb-in	N-m	lb-in			kg-cm2	lb-in-s2
SV2L-207(x)	5:1	<a href="#">PGA070-05A3</a>	70	2.39	21.2	11.35	100.70	600	1200.00	186.83	0.165
		<a href="#">PGB090-05A3</a>	90			11.11	98.58			143.75	0.127
		<a href="#">PGD090-05A3</a>	90			11.35	100.70			174.25	0.154
	10:1	<a href="#">PGA090-10A3</a>	90			22.71	201.40	300	600.00	726.00	0.643
		<a href="#">PGB090-10A3</a>	90			22.23	197.16			586.00	0.519
		<a href="#">PGD090-10A3</a>	90			22.71	201.40			722.00	0.639
	15:1	<a href="#">PGA090-15A3</a>	90			32.27	286.20	200	400.00	1669.50	1.478
		<a href="#">PGB090-15A3</a>	90			31.55	279.84			1622.25	1.436
		<a href="#">PGA090-25A3</a>	90			53.78	477.00			4643.75	4.110
	25:1	<a href="#">PGB090-25A3</a>	90			52.58	466.40	120	240.00	4518.75	3.999
		<a href="#">PGD110-25A3</a>	110			53.78	477.00			4281.25	3.789
		<a href="#">PGD110-50A3</a>	110			107.55	954.00			17875.00	15.819
SV2L-210(x)	5:1	<a href="#">PGA090-05A4</a>	90	3.18	28.15	15.11	133.69	600	1000.00	321.25	0.284
		<a href="#">PGB090-05A4</a>	90			14.79	130.88			286.25	0.253
		<a href="#">PGD090-05A4</a>	90			15.11	133.69			319.25	0.283
	10:1	<a href="#">PGA090-10A4</a>	90			30.21	267.38	300	500.00	1296.00	1.147
		<a href="#">PGB090-10A4</a>	90			29.57	261.75			1156.00	1.023
		<a href="#">PGD090-10A4</a>	90			30.21	267.38			1292.00	1.143
	15:1	<a href="#">PGA120-15A4</a>	120			42.93	379.96	200	333.33	2884.50	2.553
		<a href="#">PGB120-15A4</a>	120			41.98	371.52			2475.00	2.190
		<a href="#">PGD110-25A4</a>	110			71.55	633.27			7843.75	6.942
	25:1	<a href="#">PGA120-25A4</a>	120			69.96	619.20	120	200.00	8043.75	7.119
		<a href="#">PGB120-25A4</a>	120			69.96	619.20			6918.75	6.123
		<a href="#">PGD110-50A4</a>	110			143.10	1266.54			32125.00	28.431
SV2M-210(x)	5:1	<a href="#">PGA090-05A5</a>	90	4.77	42.22	22.66	200.54	400.00	600.00	1041.25	0.922
		<a href="#">PGD090-05A5</a>	90			22.18	196.31			1039.25	0.920
		<a href="#">PGB120-05A5</a>	120			22.18	196.31			925.75	0.819
	10:1	<a href="#">PGA090-10A5</a>	90			45.32	401.07	200.00	300.00	4176.00	3.696
		<a href="#">PGD110-10A5</a>	110			44.36	392.63			4172.00	3.692
		<a href="#">PGB120-10A5</a>	120			44.36	392.63			3759.00	3.327
	15:1	<a href="#">PGA120-15A5</a>	120			64.40	569.94	133.33	200.00	9364.50	8.288
		<a href="#">PGB120-15A5</a>	120			62.96	557.28			8955.00	7.925
		<a href="#">PGD110-25A5</a>	110			107.33	949.91			25843.75	22.872
	25:1	<a href="#">PGA120-25A5</a>	120			104.94	928.80	80.00	120.00	26043.75	23.049
		<a href="#">PGB120-25A5</a>	120			104.94	928.80			24918.75	22.053
		<a href="#">PGD110-35A5</a>	110			150.26	1329.87			50653.75	44.829

\* Available load inertia is calculated based on servo motor inertia using the formula: Available Inertia = (5 x Motor Inertia – Gearbox Inertia) x (Gear Ratio)<sup>2</sup> A 5:1 inertia mismatch is a good target for design purposes. Systems with lower or higher mismatch may be possible, depending on operating conditions.



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Sure Servo Motor	Gear Ratio	SureGear Gearbox	Frame Size (mm)	Motor Nominal Output Torque		Combo Nominal Output Torque		Nominal Output Speed (rpm)	Max Output Speed (rpm)	Available Load Inertia @ 5:1 Mismatch *			
				N-m	lb-in	N-m	lb-in			kg-cm2	lb-in-s2		
SV2M-215(x)	5:1	<a href="#">PGA090-05A5</a>	90	7.16	63.37	34.01	301.01	400.00	600.00	1390.00	1.230		
		<a href="#">PGD090-05A5</a>	90							1388.00	1.228		
		<a href="#">PGB120-05A5</a>	120							1274.50	1.128		
	10:1	<a href="#">PGA090-10A5</a>	90			68.02	602.03	200.00	300.00	5571.00	4.930		
		<a href="#">PGD110-10A5</a>	110							5567.00	4.927		
		<a href="#">PGB120-10A5</a>	120							5154.00	4.561		
	15:1	<a href="#">PGA120-15A5</a>	120			96.66	855.51	133.33	200.00	12503.25	11.065		
		<a href="#">PGB120-15A5</a>	120							12093.75	10.703		
		<a href="#">PGD110-25A5</a>	110							34562.50	30.588		
	25:1	<a href="#">PGA120-25A5</a>	120			161.10	1425.86	80.00	120.00	34762.50	30.765		
		<a href="#">PGB120-25A5</a>	120							33637.50	29.769		
		<a href="#">PGD110-35A5</a>	110							225.54	1996.20	57.14	85.71
SV2M-220(x)	5:1	<a href="#">PGD110-05A6</a>	110	9.55	84.52	45.36	401.49	400.00	600.00	4280.00	3.788		
		<a href="#">PGA120-05A6</a>	120							4297.50	3.803		
		<a href="#">PGB120-05A6</a>	120							4212.00	3.728		
		<a href="#">PGB155-05A6</a>	155							3914.75	3.465		
	10:1	<a href="#">PGD110-10A6</a>	110			90.73	802.98	200.00	300.00	17240.00	15.257		
		<a href="#">PGA120-10A6</a>	120							17255.00	15.271		
		<a href="#">PGB120-10A6</a>	120							16904.00	14.960		
		<a href="#">PGB155-10A6</a>	155							15884.00	14.057		
	15:1	<a href="#">PGA155-15A6</a>	155			128.93	1141.08	133.33	200.00	38745.00	34.289		
		<a href="#">PGB155-15A6</a>	155							126.06	1115.73	37597.50	33.274
	25:1	<a href="#">PGA155-25A6</a>	155			214.88	1901.80	80.00	120.00	107750.00	95.359		
		<a href="#">PGB155-25A6</a>	155							210.10	1859.54	104593.75	92.565
SV2M-230(x)	5:1	<a href="#">PGD110-05A6</a>	110	17.55	155.33	83.36	737.80	340.00	600.00	6817.50	6.033		
		<a href="#">PGA120-05A6</a>	120							6835.00	6.049		
		<a href="#">PGB120-05A6</a>	120							6749.50	5.973		
		<a href="#">PGB155-05A6</a>	155							6452.25	5.710		
	10:1	<a href="#">PGD110-10A6</a>	110			166.73	1475.68	170.00	300.00	27390.00	24.240		
		<a href="#">PGA120-10A6</a>	120							27405.00	24.253		
		<a href="#">PGB120-10A6</a>	120							163.22	1444.62	27054.00	23.943
		<a href="#">PGB155-10A6</a>	155							26034.00	23.040		
	15:1	<a href="#">PGA155-15A6</a>	155			236.93	2097.01	113.33	200.00	61582.50	54.501		
		<a href="#">PGB155-15A6</a>	155							231.66	2050.36	60435.00	53.485
	25:1	<a href="#">PGA155-25A6</a>	155			394.88	3494.98	68.00	120.00	171187.50	151.501		
		<a href="#">PGB155-25A6</a>	155							386.10	3417.27	168031.25	148.708

\* Available load inertia is calculated based on servo motor inertia using the formula: Available Inertia = (5 x Motor Inertia – Gearbox Inertia) x (Gear Ratio)<sup>2</sup> A 5:1 inertia mismatch is a good target for design purposes. Systems with lower or higher mismatch may be possible, depending on operating conditions.



# Precision Servo Gearboxes

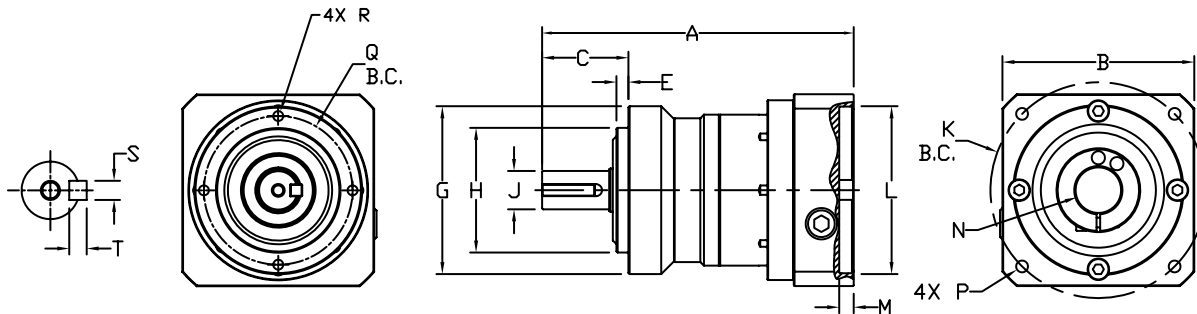
## Pricing & Specifications – In-Line Shaft PGA Series

SureGear® Precision Servo Gearboxes – In-Line Shaft PGA Series																									
Part Number	Price	Frame Size (mm)	Ratio	Reduction	Nominal Output Torque (N·m [lb-in])	Max. Acceleration Torque (N·m [lb-in])	Emergency Stop Torque (N·m [lb-in])	Backlash (arc-min)	Nominal Input Speed (rpm)	Max. Input Speed (rpm)	Allowable Radial Load (N [lb])	Allowable Thrust Load (N [lb])	Moment of Inertia (kg·cm <sup>2</sup> )	Efficiency (%)	Max. Housing Temperature	Approx Weight (kg [lb])	Environmental Rating	Fits SureServo Servo Motor (SV & SV2)							
<a href="#">PGA050-05A1</a>	\$465.00	50	5:1	single	9 [80]	18 [159]	35 [310]	5	4000	8000	290 [65]	330 [74]	0.036	95	90 °C [194 °F]	0.7 [1.5]	IP55	SV(2)L-201(B)							
<a href="#">PGA050-10A1</a>	\$490.00		10:1	single	6 [53]	12 [106]	30 [266]				360 [81]	450 [101]	0.030												
<a href="#">PGA050-15A1</a>	\$672.00		15:1	double	6 [53]	12 [106]	30 [266]				410 [92]	540 [121]	0.035												
<a href="#">PGA050-25A1</a>	\$672.00		25:1	double	9 [80]	18 [159]	35 [310]				490 [110]	640 [144]	0.034												
<a href="#">PGA070-05A1</a>	\$465.00	70	5:1	single	27 [239]	50 [443]	100 [885]	5	3000	6000	510 [115]	390 [88]	0.077	95	90 °C [194 °F]	1.5 [3.3]	IP55	SV(2)L-201(B)							
<a href="#">PGA070-10A1</a>	\$490.00		10:1	single	18 [159]	35 [310]	80 [708]				640 [144]	530 [119]	0.056												
<a href="#">PGA070-15A1</a>	\$672.00		15:1	double	18 [159]	35 [310]	80 [708]				740 [166]	630 [142]	0.055												
<a href="#">PGA070-25A1</a>	\$672.00		25:1	double	27 [239]	50 [443]	100 [885]				870 [196]	790 [178]	0.053												
<a href="#">PGA070-05A2</a>	\$508.00		5:1	single	27 [239]	50 [443]	100 [885]				510 [115]	390 [88]	0.160					90	1.7 [3.7]						
<a href="#">PGA070-10A2</a>	\$508.00		10:1	single	18 [159]	35 [310]	80 [708]				640 [144]	530 [119]	0.140					95	1.5 [3.3]						
<a href="#">PGA070-15A2</a>	\$696.00		15:1	double	18 [159]	35 [310]	80 [708]				740 [166]	630 [142]	0.140					90	1.7 [3.7]						
<a href="#">PGA070-25A2</a>	\$696.00		25:1	double	27 [239]	50 [443]	100 [885]				870 [196]	790 [178]	0.130					90	1.7 [3.7]						
<a href="#">PGA070-05A3</a>	\$508.00	5:1	single	27 [239]	50 [443]	100 [885]	510 [115]	390 [88]	0.360	95	1.5 [3.3]														
<a href="#">PGA090-10A3</a>	\$601.00	90	10:1	single	50 [443]	80 [708]	200 [1770]	5	3000	6000	1200 [270]	1600 [360]	0.750	95	90 °C [194 °F]	3.5 [7.7]	IP55	SV(2)L-207(B)							
<a href="#">PGA090-15A3</a>	\$794.00		15:1	double	50 [443]	80 [708]	200 [1770]				1400 [315]	1900 [427]	0.720												
<a href="#">PGA090-25A3</a>	\$794.00		25:1	double	75 [664]	125 [1106]	250 [2213]				1600 [360]	2200 [495]	0.710					90	4.0 [8.8]						
<a href="#">PGA090-05A4</a>	\$600.00		5:1	single	75 [664]	125 [1106]	250 [2213]				960 [216]	1200 [270]	2.900					95	3.5 [7.7]						
<a href="#">PGA090-10A4</a>	\$600.00		10:1	single	50 [443]	80 [708]	200 [1770]				1200 [270]	1600 [360]	2.800												
<a href="#">PGA090-05A5</a>	\$600.00		5:1	single	75 [664]	125 [1106]	250 [2213]				960 [216]	1200 [270]	2.900					95	3.5 [7.7]						
<a href="#">PGA090-10A5</a>	\$600.00		10:1	single	50 [443]	80 [708]	200 [1770]				1200 [270]	1600 [360]	2.800												
<a href="#">PGA120-15A4</a>	\$997.00		120	15:1	double	120 [1062]	225 [1991]				500 [4425]	5	3000					6000	2300 [517]	3000 [674]	2.800	90	8.7 [19.2]	IP55	SV(2)L-210(B)
<a href="#">PGA120-25A4</a>	\$997.00			25:1	double	180 [1593]	330 [2921]				625 [5532]								2700 [607]	3700 [832]	2.800				
<a href="#">PGA120-15A5</a>	\$997.00			15:1	double	120 [1062]	225 [1991]				500 [4425]								2300 [517]	3000 [674]	2.800				
<a href="#">PGA120-25A5</a>	\$997.00	25:1		double	180 [1593]	330 [2921]	625 [5532]	2700 [607]	3700 [832]	2.800															
<a href="#">PGA120-05A6</a>	\$795.00	5:1		single	180 [1593]	330 [2921]	625 [5532]	1600 [360]	1900 [427]	11.000	95			7.8 [17.2]											
<a href="#">PGA120-10A6</a>	\$795.00	10:1		single	120 [1062]	225 [1991]	500 [4425]	2000 [450]	2500 [562]	11.000															
<a href="#">PGA155-10A6</a>	\$982.00	155	10:1	single	240 [2124]	470 [4160]	1000 [8851]	5	2000	4000	4700 [1057]	4100 [922]	11.000	95	16 [35.3]	IP55	SV(2)M-210(B)								
<a href="#">PGA155-15A6</a>	\$1,336.00		15:1	double	240 [2124]	470 [4160]	1000 [8851]				5400 [1214]	4900 [1102]	11.000												
<a href="#">PGA155-25A6</a>	\$1,336.00		25:1	double	360 [3186]	700 [6196]	1250 [11063]				6400 [1439]	6100 [1371]	11.000					90	18 [40.0]						



# Precision Servo Gearboxes

## Dimensions – In-Line Shaft PGA Series



SureGear PGA Series In-Line Shaft Gearboxes Dimension Drawing

SureGear® Precision Servo Gearbox Dimensions – In-Line Shaft PGA Series ( dimensions = mm [in] )																
Part Number	A	B	C	E	G	H	J	K	L	M	N	P	Q	R	S	T
PGA050-05A1	88.5	42.0	24.5	4.0	Ø50.0	Ø35.0	Ø12.0	Ø46.0	Ø30.0	5.0	Ø8.0	M4-	Ø44.0	M4-	4.0	4.0
PGA050-10A1	[3.48]	[1.65]	[0.96]	[0.16]	[Ø1.97]	[Ø1.38]	[Ø0.47]	[Ø1.81]	[Ø1.18]	[0.20]	[Ø0.31]	0.7x9	[Ø1.73]	0.7x8	[0.16]	[0.16]
PGA050-15A1	105.0	42.0	24.5	4.0	Ø50.0	Ø35.0	Ø12.0	Ø46.0	Ø30.0	5.0	Ø8.0	M4-	Ø44.0	M4-	4.0	4.0
PGA050-25A1	[4.13]	[1.65]	[0.96]	[0.16]	[Ø1.97]	[Ø1.38]	[Ø0.47]	[Ø1.81]	[Ø1.18]	[0.20]	[Ø0.31]	0.7x9	[Ø1.73]	0.7x8	[0.16]	[0.16]
PGA070-05A1	112.0	52.0	36.0	5.0	Ø70.0	Ø52.0	Ø16.0	Ø46.0	Ø30.0	5.0	Ø8.0	M4-	Ø62.0	M5-	5.0	5.0
PGA070-10A1	[4.41]	[2.05]	[1.42]	[0.20]	[Ø2.76]	[Ø2.05]	[Ø0.63]	[Ø1.81]	[Ø1.18]	[0.20]	[Ø0.31]	0.7x9	[Ø2.44]	0.8x10	[0.20]	[0.20]
PGA070-05A2	115.0	65.0	36.0	5.0	Ø70.0	Ø52.0	Ø16.0	Ø70.0	Ø50.0	5.0	Ø14.0	M5-	Ø62.0	M5-	5.0	5.0
PGA070-10A2	[4.53]	[2.56]	[1.42]	[0.20]	[Ø2.76]	[Ø2.05]	[Ø0.63]	[Ø2.76]	[Ø1.97]	[0.20]	[Ø0.55]	0.8x11	[Ø2.44]	0.8x10	[0.20]	[0.20]
PGA070-05A3	130.0	80.0	36.0	5.0	Ø70.0	Ø52.0	Ø16.0	Ø90.0	Ø70.0	6.0	Ø19.0	M6-	Ø62.0	M5-	5.0	5.0
PGA070-15A1	[5.12]	[3.15]	[1.42]	[0.20]	[Ø2.76]	[Ø2.05]	[Ø0.63]	[Ø3.54]	[Ø2.76]	[0.24]	[Ø0.75]	1.0x13	[Ø2.44]	0.8x10	[0.20]	[0.20]
PGA070-15A2	131.0	52.0	36.0	5.0	Ø70.0	Ø52.0	Ø16.0	Ø46.0	Ø30.0	5.0	Ø8.0	M4-	Ø62.0	M5-	5.0	5.0
PGA070-25A1	[5.16]	[2.05]	[1.42]	[0.20]	[Ø2.76]	[Ø2.05]	[Ø0.63]	[Ø1.81]	[Ø1.18]	[0.20]	[Ø0.31]	0.7x9	[Ø2.44]	0.8x10	[0.20]	[0.20]
PGA070-15A2	136.0	65.0	36.0	5.0	Ø70.0	Ø52.0	Ø16.0	Ø70.0	Ø50.0	5.0	Ø14.0	M5-	Ø62.0	M5-	5.0	5.0
PGA070-25A2	[5.35]	[2.56]	[1.42]	[0.20]	[Ø2.76]	[Ø2.05]	[Ø0.63]	[Ø2.76]	[Ø1.97]	[0.20]	[Ø0.55]	0.8x11	[Ø2.44]	0.8x10	[0.20]	[0.20]
PGA090-10A3	153.0	80.0	46.0	7.0	Ø90.0	Ø68.0	Ø22.0	Ø90.0	Ø70.0	6.0	Ø19.0	M6-	Ø80.0	M6-	6.0	6.0
PGA090-05A4	[6.02]	[3.15]	[1.81]	[0.28]	[Ø3.54]	[Ø2.68]	[Ø0.87]	[Ø3.54]	[Ø2.76]	[0.24]	[Ø0.75]	1.0x13	[Ø3.15]	1.0x12	[0.24]	[0.24]
PGA090-10A4	170.0	100.0	46.0	7.0	Ø90.0	Ø68.0	Ø22.0	Ø115.0	Ø95.0	8.0	Ø22.0 *	M8-	Ø80.0	M6-	6.0	6.0
PGA090-10A4	[6.69]	[3.94]	[1.81]	[0.28]	[Ø3.54]	[Ø2.68]	[Ø0.87]	[Ø4.53]	[Ø3.74]	[0.31]	[Ø0.87]	1.25x17	[Ø3.15]	1.0x12	[0.24]	[0.24]
PGA090-05A5	165.0	130.0	46.0	7.0	Ø90.0	Ø68.0	Ø22.0	Ø145.0	Ø110.0	8.0	Ø22.0 *	M8-	Ø80.0	M6-	6.0	6.0
PGA090-10A5	[6.50]	[5.12]	[1.81]	[0.28]	[Ø3.54]	[Ø2.68]	[Ø0.87]	[Ø5.71]	[Ø4.33]	[0.31]	[Ø0.87]	1.25x17	[Ø3.15]	1.0x12	[0.24]	[0.24]
PGA090-15A3	175.0	80.0	46.0	7.0	Ø90.0	Ø68.0	Ø22.0	Ø90.0	Ø70.0	6.0	Ø19.0	M6-	Ø80.0	M6-	6.0	6.0
PGA090-25A3	[6.89]	[3.15]	[1.81]	[0.28]	[Ø3.54]	[Ø2.68]	[Ø0.87]	[Ø3.54]	[Ø2.76]	[0.24]	[Ø0.75]	1.0x13	[Ø3.15]	1.0x12	[0.24]	[0.24]
PGA120-05A6	225.0	180.0	70.0	9.0	Ø120.0	Ø90.0	Ø32.0	Ø200.0	Ø114.0	8.0	Ø35.0 *	M12-	Ø108.0	M8-	10.0	8.0
PGA120-10A6	[8.86]	[7.09]	[2.76]	[0.35]	[Ø4.72]	[Ø3.54]	[Ø1.26]	[Ø7.87]	[Ø4.49]	[0.31]	[Ø1.38]	1.75x25	[Ø4.25]	1.25x16	[0.39]	[0.31]
PGA120-15A4	231.5	100.0	70.0	9.0	Ø120.0	Ø90.0	Ø32.0	Ø115.0	Ø95.0	8.0	Ø22.0 *	M8-	Ø108.0	M8-	10.0	8.0
PGA120-25A4	[9.11]	[3.94]	[2.76]	[0.35]	[Ø4.72]	[Ø3.54]	[Ø1.26]	[Ø4.53]	[Ø3.74]	[0.31]	[Ø0.87]	1.25x17	[Ø4.25]	1.25x16	[0.39]	[0.31]
PGA120-15A5	231.5	130.0	70.0	9.0	Ø120.0	Ø90.0	Ø32.0	Ø145.0	Ø110.0	8.0	Ø22.0 *	M8-	Ø108.0	M8-	10.0	8.0
PGA120-25A5	[9.11]	[5.12]	[2.76]	[0.35]	[Ø4.72]	[Ø3.54]	[Ø1.26]	[Ø5.71]	[Ø4.33]	[0.31]	[Ø0.87]	1.25x17	[Ø4.25]	1.25x16	[0.39]	[0.31]
PGA155-10A6	264.0	180.0	97.0	12.0	Ø155.0	Ø120.0	Ø40.0	Ø200.0	Ø114.0	8.0	Ø35.0 *	M12-	Ø140.0	M10-	12.0	8.0
PGA155-10A6	[10.39]	[7.09]	[3.82]	[0.47]	[Ø6.10]	[Ø4.72]	[Ø1.57]	[Ø7.87]	[Ø4.49]	[0.31]	[Ø1.38]	1.75x25	[Ø5.51]	1.50x28	[0.47]	[0.31]
PGA155-15A6	298.5	180.0	97.0	12.0	Ø155.0	Ø120.0	Ø40.0	Ø200.0	Ø114.0	8.0	Ø35.0 *	M12-	Ø140.0	M10-	12.0	8.0
PGA155-25A6	[11.75]	[7.09]	[3.82]	[0.47]	[Ø6.10]	[Ø4.72]	[Ø1.57]	[Ø7.87]	[Ø4.49]	[0.31]	[Ø1.38]	1.75x25	[Ø5.51]	1.50x28	[0.47]	[0.31]

\* Dimension with supplied bushing

NOTE: See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.



# Precision Servo Gearboxes

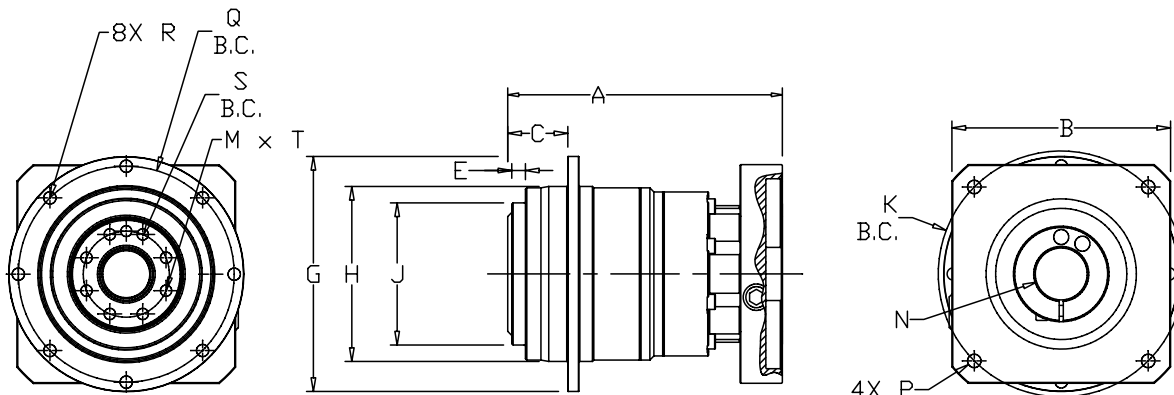
## Pricing & Specifications – Hub Style In-Line PGD Series

SureGear® Precision Servo Gearboxes – Hub Style In-Line PGD Series																		
Part Number	Price	Frame Size (mm)	Ratio	Reduction	Nominal Output Torque (N·m [lb-in])	Max. Acceleration Torque (N·m [lb-in])	Emergency Stop Torque (N·m [lb-in])	Backlash (arc-min)	Nominal Input Speed (rpm)	Max. Input Speed (rpm)	Allowable Radial Load (N [lb])	Allowable Thrust Load (N [lb])	Moment of Inertia (kg-cm <sup>2</sup> )	Efficiency (%)	Max. Housing Temperature	Approx Weight (kg [lb])	Ingress Protection (IP) Rating	Fits SureServo Servo Motor
<a href="#">PGD047-05A1</a>	\$843.00	47	5:1	single	9 [80]	18 [159]	35 [310]	≤ 3	4000	8000	300 [67]	330 [74]	0.043	95		0.7 [1.5]		SV(2)L-201(B)
<a href="#">PGD047-10A1</a>	\$843.00		10:1	single	6 [53]	12 [106]	30 [266]				370 [83]	450 [101]	0.032					
<a href="#">PGD047-25A1</a>	\$1,056.00		25:1	double	9 [80]	18 [159]	35 [310]				510 [115]	550 [124]	0.034					
<a href="#">PGD064-50A1</a>	\$1,277.00	64	50:1	double	27 [239]	50 [443]	100 [885]				850 [191]	750 [169]	0.049	90		1.6 [3.5]		SV(2)L-202(B) SV(2)L-204(B)
<a href="#">PGD064-05A2</a>	\$1,090.00		5:1	single	27 [239]	50 [443]	100 [885]				400 [90]	390 [88]	0.1					
<a href="#">PGD064-10A2</a>	\$1,090.00		10:1	single	18 [159]	35 [310]	80 [708]				500 [112]	530 [119]	0.062					
<a href="#">PGD064-25A2</a>	\$1,277.00		25:1	double	27 [239]	50 [443]	100 [885]				680 [153]	750 [169]	0.054	90		1.6 [3.5]		
<a href="#">PGD090-25A2</a>	\$1,464.00	90	25:1	double	75 [664]	125 [1106]	250 [2213]				1300 [292]	1400 [315]	0.130	90	90 °C [194 °F]	4 [8.8]	IP54	SV(2)L-207(B)
<a href="#">PGD090-50A2</a>	\$1,464.00		50:1	double	75 [664]	125 [1106]	250 [2213]				1700 [382]	1700 [382]	0.099					
<a href="#">PGD090-05A3</a>	\$1,277.00		5:1	single	75 [664]	125 [1106]	250 [2213]				780 [175]	680 [153]	0.580					
<a href="#">PGD090-10A3</a>	\$1,277.00		10:1	single	50 [443]	80 [708]	200 [1770]				980 [220]	920 [207]	0.330	95		3.6 [7.9]		
<a href="#">PGD090-05A4</a>	\$1,277.00		5:1	single	75 [664]	125 [1106]	250 [2213]				780 [175]	680 [153]	0.580	95		3.6 [7.9]		SV(2)L-210(B)
<a href="#">PGD090-10A4</a>	\$1,277.00		10:1	single	50 [443]	80 [708]	200 [1770]				980 [220]	920 [207]	0.330	95		3.6 [7.9]		SV(2)L-210(B)
<a href="#">PGD090-05A5</a>	\$1,277.00		5:1	single	75 [664]	125 [1106]	250 [2213]	≤ 3	3000	6000	780 [175]	680 [153]	0.580	95		3.6 [7.9]		SV(2)M-210(B)
<a href="#">PGD110-50A2</a>	\$1,868.00	110	50:1	double	180 [1593]	330 [2921]	625 [5532]				10000 [2248]	6800 [1529]	0.400	90		8.6 [19]		SV(2)L-202(B) SV(2)L-204(B)
<a href="#">PGD110-25A3</a>	\$1,868.00		25:1	double	180 [1593]	330 [2921]	625 [5532]				8200 [1843]	5500 [1236]	0.700					
<a href="#">PGD110-50A3</a>	\$1,868.00		50:1	double	180 [1593]	330 [2921]	625 [5532]				10000 [2248]	6800 [1529]	0.400					
<a href="#">PGD110-25A4</a>	\$1,868.00		25:1	double	180 [1593]	330 [2921]	625 [5532]				8200 [1843]	5500 [1236]	0.700	90		8.6 [19]		SV(2)L-207(B)
<a href="#">PGD110-50A4</a>	\$1,868.00		50:1	double	180 [1593]	330 [2921]	625 [5532]				10000 [2248]	6800 [1529]	0.400	90		8.6 [19]		SV(2)L-210(B)
<a href="#">PGD110-10A5</a>	\$1,588.00		10:1	single	120 [1062]	225 [1991]	500 [4425]				6200 [1394]	4200 [944]	1.100	95		7.8 [17.2]		SV(2)M-210(B)
<a href="#">PGD110-25A5</a>	\$1,868.00		25:1	double	180 [1593]	330 [2921]	625 [5532]				8200 [1843]	5500 [1236]	0.700	90		8.6 [19]		SV(2)M-210(B)
<a href="#">PGD110-35A5</a>	\$1,868.00		35:1	double	180 [1593]	330 [2921]	625 [5532]				9000 [2023]	6100 [1371]	0.700	90		8.6 [19]		SV(2)M-220(B) SV(2)M-230(B)
<a href="#">PGD110-05A6</a>	\$1,588.00		5:1	single	180 [1593]	330 [2921]	625 [5532]				5000 [1124]	3400 [427]	2.300	95		7.8 [17.2]		
<a href="#">PGD110-10A6</a>	\$1,588.00		10:1	single	120 [1062]	225 [1991]	500 [4425]				6200 [1394]	4200 [944]	1.100	95		7.8 [17.2]		



# Precision Servo Gearboxes

## Dimensions – Hub Style In-Line PGD Series



SureGear PGD Series Hub Style In-Line Gearboxes Dimension Drawing

SureGear® Precision Servo Gearbox Dimensions – Hub Style In-Line PGD Series ( dimensions = mm [in] )																											
	Part Number	A*	B*	C	E	G	H	J	K	M	N**	P	Q	R	S	T											
1	PGD047-05A1 PGD047-10A1	66.5 [2.62]	42.0 [1.65]	19.5 [0.7677]	3.0 [0.1181]	Ø72.0 [Ø2.83]	Ø47.0 [Ø1.85]	Ø28.0 [Ø1.102]	Ø46.0 [Ø1.811]	4	Ø8.0 [Ø0.31]	M4-0.7x9	Ø67.0 [Ø2.6378]	3.4 [0.13]	Ø20.0 [Ø0.7874]	M3-0.5x6.5											
2	PGD047-25A1																										
2	PGD064-50A1	98.0 [3.86]	52.0 [2.05]	30.0 [1.1811]	6.0 [0.236]	Ø86.0 [Ø3.385]	Ø64.0 [Ø2.52]	Ø40.0 [Ø1.575]	Ø70.0 [Ø2.756]	8	Ø8.0 [Ø0.31]	M5-0.8x11	Ø79.0 [Ø3.11]	4.5 [0.18]	Ø31.5 [Ø1.24]	M5-0.8x10											
1	PGD064-05A2 PGD064-10A2	82.0 [3.228]																								M5-0.8x4	
2	PGD064-25A2	103.0 [4.055]	65.0 [2.56]																								M5-0.8x10
2	PGD090-25A2 PGD090-50A2	122.0 [4.803]		29.0 [1.142]	6.0 [0.236]	Ø118.0 [Ø4.65]	Ø90.0 [Ø3.54]	Ø63.0 [Ø2.48]	Ø90.0 [Ø3.543]	8	Ø14.0 [Ø0.55]	M6-1.0x13	Ø109.0 [Ø4.30]		Ø50.0 [Ø1.9685]												
1	PGD090-05A3 PGD090-10A3	110.0 [4.33]	80.0 [3.15]																								
1	PGD090-05A4 PGD090-10A4	127.0 [5.0]	100.0 [3.94]																	Ø115.0 ±0.2 [Ø4.528]			M8-1.25x17				
1	PGD090-05A5		130.0 [5.12]																Ø145.0 ±0.2 [Ø5.709]								
2	PGD110-50A2	159.5 [6.28]	65.0 [2.56]	29.0 [1.142]	6.0 [0.236]	Ø145.0 [Ø5.70]	Ø110.0 [Ø4.33]	Ø80.0 [Ø3.15]	Ø70.0 [Ø2.756]	15	Ø14.0 [Ø0.55]	M8-1.25x17	Ø135.0 [Ø5.315]	5.5 [0.22]	Ø63.0 [Ø2.48]	M6-1.0x12											
2	PGD110-25A3 PGD110-50A3	169.5 [6.673]	80.0 [3.15]															Ø90.0 [Ø3.543]									
2	PGD110-25A4 PGD110-50A4	186.5 [7.3425]	100.0 [3.94]															Ø115.0 ±0.2 [Ø4.528]									
1	PGD110-10A5	159.0 [6.26]																Ø145.0 ±0.2 [Ø5.709]									
2	PGD110-25A5 PGD110-35A5	186.5 [7.3425]	130.0 [5.12]																								
1	PGD110-05A6 PGD110-10A6	180.0 [7.087]	180.0 [7.087]																Ø200.0 ±0.2 [Ø7.874]			Ø38.0 [Ø1.45]	M12-1.75x25				

\* Length will vary depending on motor

\*\* Bushing will be inserted to adapt to motor shaft

NOTE: See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.



# Precision Servo Gearboxes

## SureGear® Servo Gearbox Replacement Parts



SureGear® Precision Servo Gearboxes – Replacement Parts		
Part Number	Price	Description
<b><u>PG050-KEY</u></b>	\$4.50	Output Shaft Key, replacement, 4 x 4 x 14 mm, for SureGear PGA050 series gearboxes.
<b><u>PG070-KEY</u></b>	\$4.50	Output Shaft Key, replacement, 5 x 5 x 22 mm, for SureGear PGA070 and PGB070 series gearboxes.
<b><u>PG090-KEY</u></b>	\$4.50	Output Shaft Key, replacement, 6 x 6 x 28 mm, for SureGear PGA090 and PGB090 series gearboxes.
<b><u>PG120-KEY</u></b>	\$4.50	Output Shaft Key, replacement, 10 x 8 x 45 mm, for SureGear PGA120 and PGB120 series gearboxes.
<b><u>PG155-KEY</u></b>	\$4.50	Output Shaft Key, replacement, 12 x 8 x 65 mm, for SureGear PGA155 and PGB155 series gearboxes.
<b><u>PGA4-A5-BUSH</u></b>	\$22.50	Input Shaft Bushing, replacement, 28 x 22 x 30.5 mm, for all SureGear gearboxes using SV(2)L-210(B) and SV(2)M-210(B) SureServo motors.
<b><u>PGA6-BUSH</u></b>	\$22.50	Input Shaft Bushing, replacement, 38 x 35 x 36 mm, for all SureGear gearboxes using SV(2)M-220(B) and SV(2)M-230(B) SureServo motors.