



# Precision Servo Gearboxes

SureGear® Servo Gearbox Selection													
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-201(x) APMC-FAL01xxx	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	26.32
	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	37.36	54.11	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	62.26			151.56	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	26.51	25.00	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	53.01
	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							8.45	75.24	264.83	0.234
		<a href="#">PGB090-15A2</a>	90							204.75	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	125.40	736.88	0.652
		<a href="#">PGB090-25A2</a>	90							581.25	0.514		
		<a href="#">PGD090-25A2</a>	90							14.40	128.25	700.00	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	52.08	50.00	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	104.16
	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							16.76	147.84	489.83	0.433
		<a href="#">PGB090-15A2</a>	90							429.75	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	246.40	1361.88	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	504.00	60	120.00
		<a href="#">PGD110-50A2</a>	110			4625.00	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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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="#">PGD110-25A3</a>	110			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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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
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							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
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							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
	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

\* 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

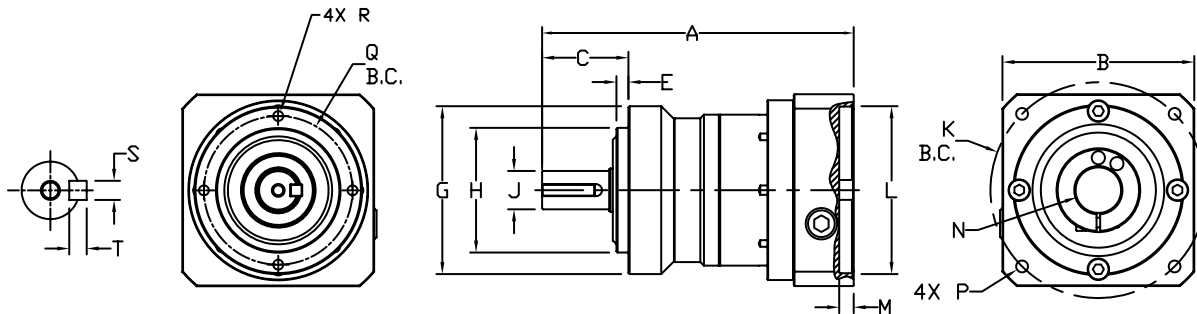
## Pricing & Specifications – In-Line Shaft PGA Series

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]	7	490 [110]	640 [144]	0.034	90	0.8 [1.8]					
<a href="#">PGA050-25A1</a>	\$672.00		25:1	double	9 [80]	18 [159]	35 [310]											
<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	90	1.7 [3.7]						
<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	70	5:1	single	27 [239]	50 [443]	100 [885]	5	3000	6000	510 [115]	390 [88]	0.160	95	90 °C [194 °F]	1.5 [3.3]	IP55	SV(2)L-202(B) SV(2)L-204(B)
<a href="#">PGA070-10A2</a>	\$508.00		10:1	single	18 [159]	35 [310]	80 [708]				640 [144]	530 [119]	0.140					
<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		
<a href="#">PGA070-05A3</a>	\$508.00	70	5:1	single	27 [239]	50 [443]	100 [885]	5	3000	6000	510 [115]	390 [88]	0.360	95	90 °C [194 °F]	1.5 [3.3]	IP55	SV(2)L-207(B)
<a href="#">PGA090-10A3</a>	\$601.00		10:1	single	50 [443]	80 [708]	200 [1770]				1200 [270]	1600 [360]	0.750					
<a href="#">PGA090-15A3</a>	\$794.00		15:1	double	50 [443]	80 [708]	200 [1770]	1400 [315]	1900 [427]	0.720	90	4.0 [8.8]						
<a href="#">PGA090-25A3</a>	\$794.00		25:1	double	75 [664]	125 [1106]	250 [2213]						1600 [360]	2200 [495]		0.710		
<a href="#">PGA090-05A4</a>	\$600.00	90	5:1	single	75 [664]	125 [1106]	250 [2213]	5	3000	6000	960 [216]	1200 [270]	2.900	95	90 °C [194 °F]	3.5 [7.7]	IP55	SV(2)L-210(B)
<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	2000	4000	2300 [517]	3000 [674]	2.800	90	90 °C [194 °F]	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	90	8.7 [19.2]						
<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	120	5:1	single	180 [1593]	330 [2921]	625 [5532]	5	2000	4000	1600 [360]	1900 [427]	11.000	95	90 °C [194 °F]	7.8 [17.2]	IP55	SV(2)M-220(B) SV(2)M-230(B)
<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		10:1	single	240 [2124]	470 [4160]	1000 [8851]	4700 [1057]	4100 [922]	11.000	95	16 [35.3]						
<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	155	25:1	double	360 [3186]	700 [6196]	1250 [11063]	2000	4000	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]
PGA090-05A4	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
PGA155-15A6	[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

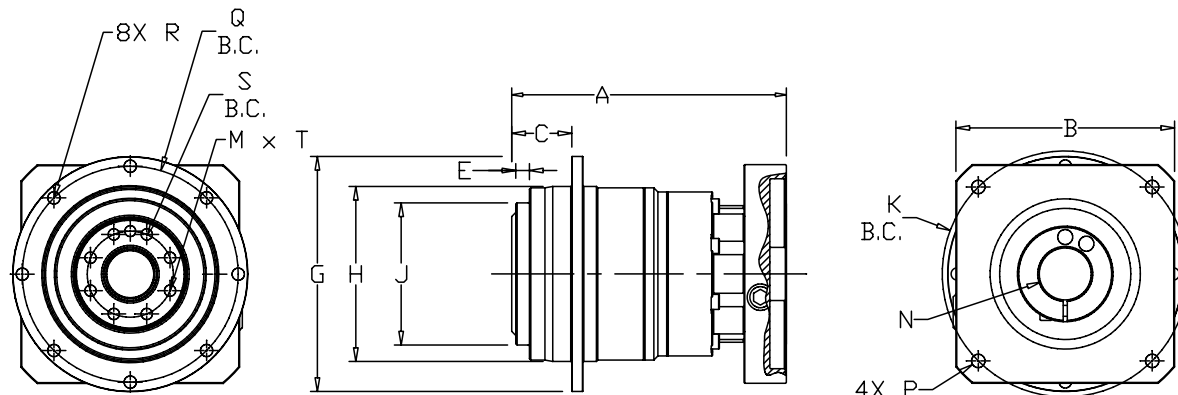
## Pricing & Specifications – Hub Style In-Line PGD Series

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]	5.5 [0.22]	Ø50.0 [Ø1.9685]	M6-1.0x12											
1	PGD090-05A3 PGD090-10A3	110.0 [4.33]	80.0 [3.15]																								
1	PGD090-05A4 PGD090-10A4		100.0 [3.94]																	Ø115.0 ±0.2 [Ø4.528]			Ø28.0 [Ø1.102]	M8-1.25x17			
1	PGD090-05A5	127.0 [5.0]	130.0 [5.12]																Ø145.0 ±0.2 [Ø5.709]								
2	PGD110-50A2	159.5 [6.28]	65.0 [2.56]																	Ø70.0 [Ø2.756]			Ø14.0 [Ø0.55]	M5-0.8x11			
2	PGD110-25A3 PGD110-50A3	169.5 [6.673]	80.0 [3.15]					Ø90.0 [Ø3.543]			Ø19.0 [Ø0.75]	M6-1.0x13															
2	PGD110-25A4 PGD110-50A4	186.5 [7.3425]	100.0 [3.94]			Ø145.0 [Ø5.70]	Ø110.0 [Ø4.33]	Ø80.0 [Ø3.15]	Ø115.0 ±0.2 [Ø4.528]	15	Ø28.0 [Ø1.102]	M8-1.25x17	Ø135.0 [Ø5.315]	Ø63.0 [Ø2.48]													
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.