

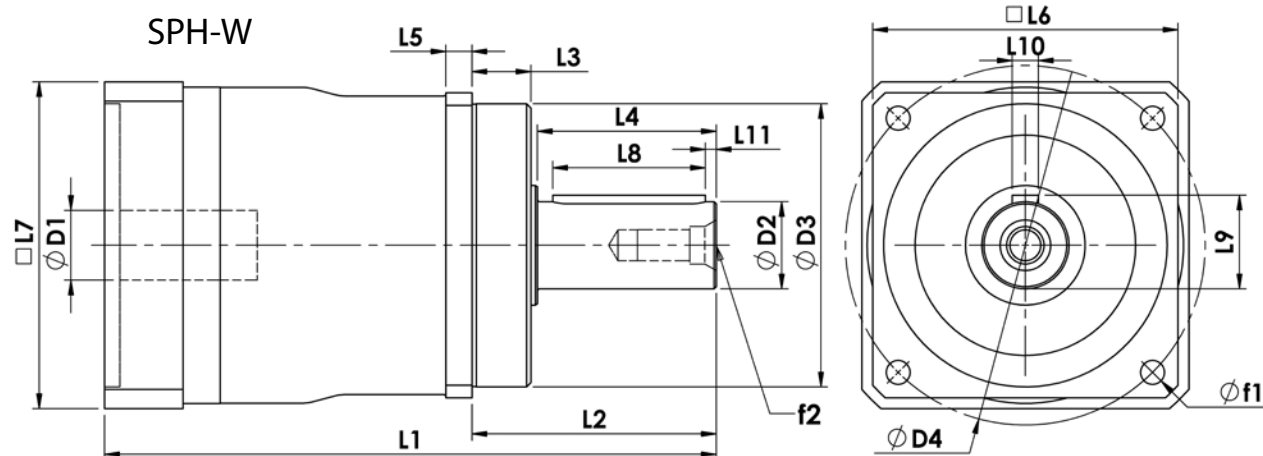


► HIGHEST PERFORMANCE: SPH SERIES - SPH-W

SPH-W			60			75			100			140			180		
All Ratios Available																	
Nominal Output Torque (T _{2n})	Nm (lb-in)	3:1-5:1	60	(531)	100	(885)	250	(2213)	450	(3983)	900	(7966)					
		7:1	40	(354)	80	(708)	180	(1593)	420	(3717)	800	(7081)					
		10:1	30	(266)	65	(575)	110	(974)	240	(2124)	450	(3983)					
		12:1-40:1	60	(531)	100	(885)	250	(2213)	450	(3983)	900	(7966)					
		50:1	40	(354)	80	(708)	250	(2213)	450	(3983)	900	(7966)					
		70:1	40	(354)	80	(708)	180	(1593)	420	(3717)	800	(7081)					
		100:1	30	(266)	65	(575)	110	(974)	240	(2124)	450	(3983)					
Max Acceleration Output Torque (T _{2B})	Nm (lb-in)	1.5 x Nominal (T _{2n})															
Emergency Output Torque (T _{2not})	Nm (lb-in)	3.5 x Nominal (T _{2n})															
Nominal Input Speed (n _{1n})	RPM	-	4500		4500		4000		3800		2000						
Max Input Speed (n _{1max})		-	6000														
Standard Output Backlash* (j)	arcmin	1-stage	<4		<4		<4		<4		<4						
		2-stage	<6		<6		<6		<6		<6						
Reduced Output Backlash* (j)	arcmin	1-stage	<2		<2		<2		<2		-						
		2-stage	<4		<4		<4		<4		-						
Allowable Radial Load (F _{rad})1)	N (lbf)	-	3,500 (787)		4,500 (1012)		8,000 (1798)		12,000 (2698)		20,000 (4496)						
Allowable Axial Load (F _{axial})	N (lbf)	-	1,600 (360)		2,400 (540)		2,400 (540)		6,000 (1349)		10,000 (2248)						
Torsional Stiffness* (C _{t21})	Nm/arcmin (lb-in/ arcmin)	1-stage	4.0 (35)		12 (106)		32 (283)		54 (478)		168 (1487)						
		2-stage	4.0 (35)		12 (106)		32 (283)		54 (478)		168 (1487)						
Mass Moment of Inertia (J ₁)	kg-cm ² (lb-in ²)	3:1	0.42 (0.144)		1.26 (0.431)		4.00 (1.367)		12.90 (4.408)		62.30 (21.29)						
		4:1	0.29 (0.099)		0.95 (0.325)		2.90 (0.991)		8.45 (2.888)		38.90 (13.29)						
		5:1	0.22 (0.075)		0.79 (0.270)		2.20 (0.752)		6.20 (2.119)		25.90 (8.850)						
		7:1	0.17 (0.058)		0.68 (0.232)		1.81 (0.619)		4.66 (1.592)		18.40 (6.288)						
		10:1	0.15 (0.051)		0.62 (0.212)		1.60 (0.547)		3.86 (1.319)		13.60 (4.647)						
		12-16:1	0.18 (0.062)		0.62 (0.212)		1.46 (0.499)		3.40 (1.162)		12.90 (4.408)						
		20-25:1	0.14 (0.048)		0.53 (0.181)		1.20 (0.410)		2.45 (0.837)		8.69 (2.970)						
		28-40:1	0.13 (0.044)		0.50 (0.171)		1.10 (0.376)		2.10 (0.718)		6.99 (2.389)						
Weight (m)	kg (lbs)	1-stage	(2.2) (4.9)		3.6 (7.9)		7.3 (16)		17.4 (38)		38 (84)						
		2-stage	(2.9) (6.4)		4.9 (11)		9.1 (20)		23.3 (51)		48 (106)						
Noise Level (L _{pa})	dB(A)	1-stage	<60		<63		<64		<65		<65						
		2-stage	<60		<61		<62		<63		<64						
Efficiency at Load		1-stage: 98% 2-stage: 96%															
Service Life		>20,000 hours															
Lubrication		Lifetime lubrication with synthetic oil															
Protection Rating		IP64 (IP65/IP66 available on request)															
Operating Temperature Range		-25°C to +80°C (short term: 100°C)															

1) Load applied at center of output shaft @ 100 RPM

* See page 224 for definitions



SPH-W		60		75		100		140		180	
		mm	(in)	mm	(in)	mm	(in)	mm	(in)	mm	(in)
D1 _{max} Standard	Motor Shaft Diameter	14	(0.551)	19	(0.748)	24	(0.945)	32	(1.260)	38	(1.496)
D1 _{max} Available ¹		19	(0.748)	24	(0.945)	32	(1.260)	38	(1.496)	48	(1.890)
D1 _{max} 2-stage		14	(0.551)	19	(0.748)	24	(0.945)	32	(1.260)	38	(1.496)
D2 k6	Output Shaft Diameter	16	(0.630)	22	(0.866)	32	(1.260)	40	(1.575)	55	(2.165)
D3 g6	Pilot Diameter	60	(2.362)	70	(2.756)	90	(3.543)	130	(5.118)	160	(6.299)
D4	Output Bolt Circle	68	(2.677)	85	(3.346)	120	(4.724)	165	(6.496)	215	(8.465)
f1	Mounting Holes	6	(0.236)	6.6	(0.260)	9	(0.354)	11	(0.433)	13	(0.512)
f2	Shaft End Thread	M5		M8		M12		M16		M20	
L1 1-stage ²	Overall Gearbox Length	150	(5.906)	165	(6.496)	220	(8.661)	280	(11.024)	330	(12.992)
L1 2-stage ²		190	(7.480)	210	(8.268)	270	(10.630)	345	(13.583)	420	(16.535)
L2	Shaft Length	48	(1.890)	56	(2.205)	88	(3.465)	112	(4.409)	112	(4.409)
L3	Pilot Height	18	(0.709)	18	(0.709)	28	(1.102)	27	(1.063)	27	(1.063)
L4	Usable Shaft Length	28	(1.102)	36	(1.417)	58	(2.283)	82	(3.228)	82	(3.228)
L5	Flange Thickness	6	(0.236)	7	(0.276)	10	(0.394)	12	(0.472)	18	(0.709)
L6	Output Square	61	(2.402)	75	(2.953)	100	(3.937)	140	(5.512)	180	(7.087)
L7 ²	Input Square	75	(2.953)	90	(3.543)	120	(4.724)	150	(5.906)	210	(8.268)
L8	Key Length	25	(0.984)	32	(1.260)	50	(1.969)	70	(2.756)	70	(2.756)
L9	Key Height	18	(0.709)	24.5	(0.965)	35	(1.378)	43	(1.693)	59	(2.323)
L10	Key Width	5	(0.197)	6	(0.236)	10	(0.394)	12	(0.472)	16	(0.630)
L11	Key End	1.5	(0.059)	2	(0.079)	4	(0.157)	5	(0.197)	6	(0.236)

1) For larger motor shaft diameters, please contact GAM.

2) Depending on the motor, value can vary.

TYPE CODES FOR SPH SERIES (SPH-W)

Example: SPH - W - 075 - 005G - M0000 - H0000 - C0000

Gearbox Series

SPH Series

Gearbox Style

W = Output Shaft

Gearbox Size

060, 075, 100, 140, 180

Ratio

3, 4, 5, 7, 10, 12, 15, 16, 20, 25,
28, 30, 35, 40, 50, 70, 100

Configuration Code

Assigned by GAM

Output Code

Assigned by GAM

Motor Code

Assigned by GAM

Options Available for This Product

G = Key on output shaft per DIN6885

C = Reduced backlash and key on output shaft

H = Smooth output shaft

A = Reduced backlash and smooth shaft

Tolerance (mm)		
Size	k6	g6
Over 6	+0.010	-0.005
Thru 10	+0.001	-0.014
Over 10	+0.012	-0.006
Thru 18	+0.001	-0.017
Over 18	+0.015	-0.007
Thru 30	+0.002	-0.020
Over 30	+0.018	-0.009
Thru 50	+0.002	-0.025
Over 50	+0.021	-0.010
Thru 80	+0.002	-0.029
Over 80	+0.025	-0.012
Thru 120	+0.003	-0.034
Over 120	+0.028	-0.014
Thru 180	+0.003	-0.037