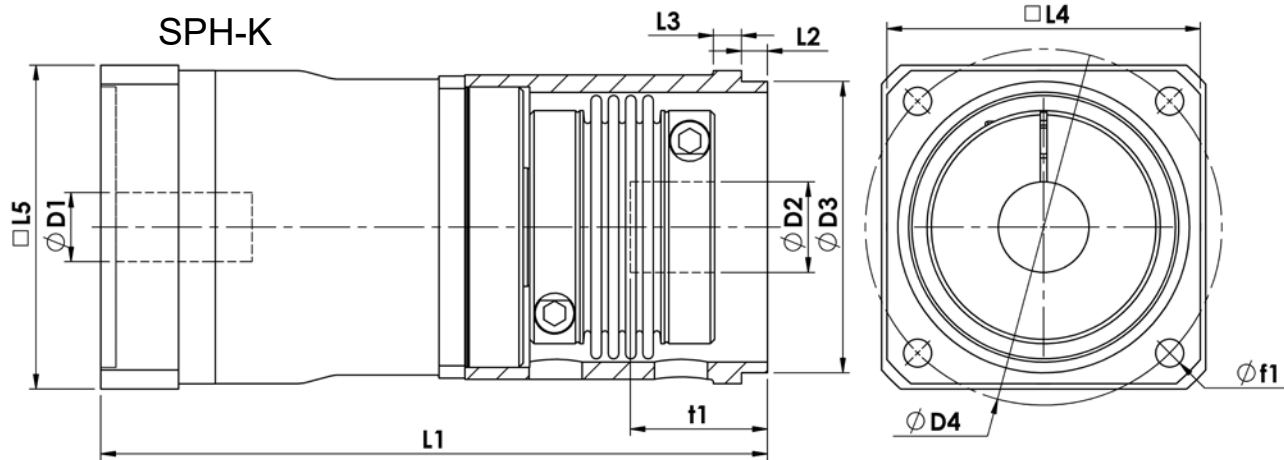




# ▶ HIGHEST PERFORMANCE: SPH SERIES - SPH-K

SPH-K		60	75	100	140	180	
All Ratios Available							
Nominal Output Torque ( $T_{2n}$ )	Nm (lb-in)	3:1-5:1	60 <sub>1</sub> (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 <sub>1</sub> (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 ( $n_{1max}$ )		-					
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
		2-stage	<4	<4	<4	<4	<4
Torsional Stiffness ( $C_{21}$ )	Nm/arcmin (lb-in/arcmin)	1-stage	2.8 (25)	7.5 (66)	20 (175)	36 (317)	96 (851)
		2-stage	2.8 (25)	7.5 (66)	20 (175)	36 (317)	96 (851)
Mass Moment of Inertia ( $J_1$ )	kg-cm <sup>2</sup> (lb-in <sup>2</sup> )	3:1	0.62 (0.212)	1.65 (0.563)	6.89 (2.354)	18.90 (6.458)	89.86 (30.705)
		4:1	0.40 (0.138)	1.17 (0.399)	4.53 (1.546)	11.83 (4.041)	54.40 (18.589)
		5:1	0.29 (0.100)	0.93 (0.318)	3.24 (1.107)	8.36 (2.857)	35.82 (12.240)
		7:1	0.21 (0.071)	0.75 (0.257)	2.34 (0.800)	5.76 (1.969)	23.46 (8.017)
		10:1	0.17 (0.057)	0.66 (0.224)	1.86 (0.636)	4.40 (1.504)	16.08 (5.495)
		12-16:1	0.19 (0.064)	0.63 (0.217)	1.56 (0.534)	3.61 (1.234)	13.87 (4.739)
		20-25:1	0.14 (0.049)	0.54 (0.183)	1.24 (0.424)	2.54 (0.867)	9.09 (3.105)
		28-40:1	0.13 (0.045)	0.50 (0.172)	1.12 (0.383)	2.14 (0.733)	7.19 (2.458)
Weight (m)	kg (lbs)	1-stage	3.0 (6.5)	4.5 (10)	11 (24)	23 (50)	52 (115)
		2-stage	3.7 (8.0)	5.8 (12.8)	13 (28)	29 (63)	62 (137)
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) Limited to 40 Nm(354 lb-in) for SPH-C and SPH-K. For higher torques, please contact GAM.



SPH-K		60		75		100		140		180	
		mm	(in)	mm	(in)	mm	(in)	mm	(in)	mm	(in)
D1 <sub>max</sub> Standard	Motor Shaft Diameter	14	(0.551)	19	(0.748)	24	(0.945)	32	(1.260)	38	(1.496)
D1 <sub>max</sub> Available <sup>1</sup>		19	(0.748)	24	(0.945)	32	(1.260)	38	(1.496)	48	(1.890)
D1 <sub>max</sub> 2-stage		14	(0.551)	19	(0.748)	24	(0.945)	32	(1.260)	38	(1.496)
D2 <sub>FB min</sub>	Minimum Output Bore	12	(0.472)	22	(0.866)	22	(0.866)	42	(1.654)	50	(1.969)
D2 <sub>FB max</sub>	Maximum Output Bore	28	(1.102)	38	(1.496)	50	(1.969)	64	(2.520)	90	(3.543)
D3 g6	Pilot Diameter	70	(2.756)	85	(3.346)	115	(4.528)	135	(5.315)	180	(7.087)
D4	Output Bolt Circle	85	(3.346)	105	(4.134)	140	(5.512)	165	(6.496)	215	(8.465)
f1	Mounting Holes	6.6	(0.260)	9	(0.354)	11	(0.433)	13	(0.512)	17	(0.669)
L1 <sup>2</sup>	Overall Gearbox Length	189	(7.441)	214	(8.425)	262	(10.315)	308	(12.126)	386	(15.197)
L1 <sub>2-stage</sub> <sup>2</sup>		229	(9.016)	259	(10.197)	312	(12.283)	373	(14.685)	476	(18.740)
L2	Pilot Height	6	(0.236)	8	(0.315)	10	(0.394)	12	(0.472)	15	(0.591)
L3	Flange Thickness	7	(0.276)	9	(0.354)	11	(0.433)	13	(0.512)	15	(0.591)
L4	Output Square	70	(2.756)	95	(3.740)	120	(4.724)	145	(5.709)	190	(7.480)
L5 <sup>2</sup>	Input Square	75	(2.953)	90	(3.543)	120	(4.724)	150	(5.906)	210	(8.268)
t1 <sub>FB min</sub>	Minimum Shaft Engagement	27	(1.063)	39.5	(1.555)	44	(1.732)	49	(1.929)	65.5	(2.579)
t1 <sub>FB max</sub>	Maximum Shaft Engagement	51	(2.008)	62	(2.441)	74	(2.913)	86	(3.386)	105	(4.134)

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

2) Depending on the motor, value can vary.

### TYPE CODES FOR SPH-K SERIES

**Example: SPH - K - 060 - 005 G - [115 - 201] - S111**

**Gearbox Series**

SPH Series

**Gearbox Style**

K = Bellows coupling output with housing

**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

**Special Options**

Assigned by GAM

**Motor Mount Kit**

Assigned by GAM

**Options Available for This Product**

- G = Standard backlash and keyway in output coupling
- C = Reduced backlash and keyway in output coupling
- H = Standard backlash and no keyway in output coupling
- A = Reduced backlash and no keyway in output coupling

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