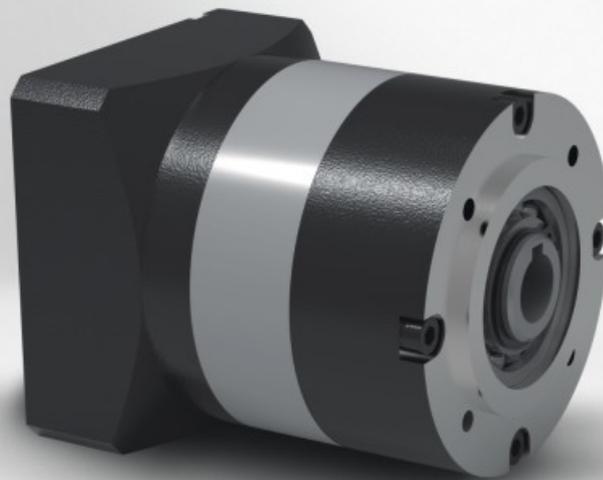


# SPLN

Powerful. Precision. Reliable

▶ Servo Planetary Gearbox

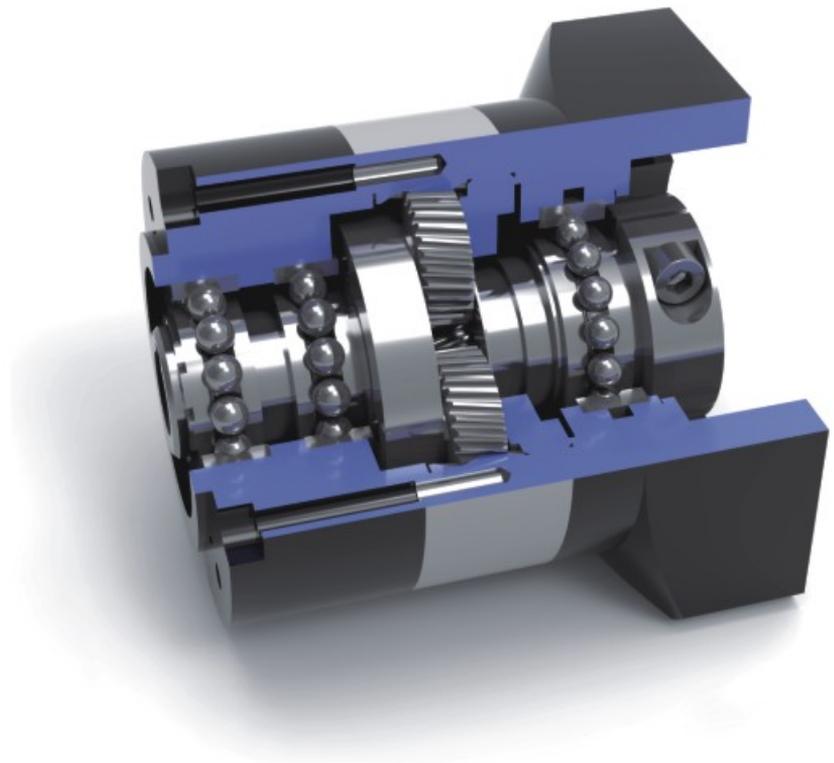
Valued Gearbox Solution





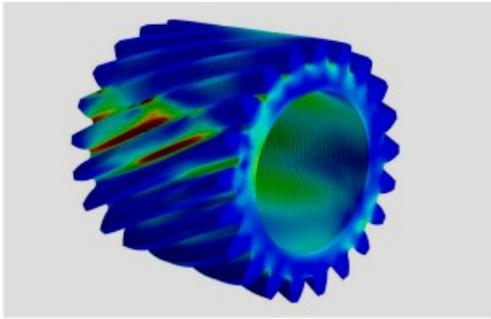
### Helical Gear System Technology

Thanks to the tooth to tooth compact ratio more than 60%.The helical gearing and full needle bearing bring the benefits including higher torque capacity, smooth and lower noise running, decreased backlash and higher efficiency.



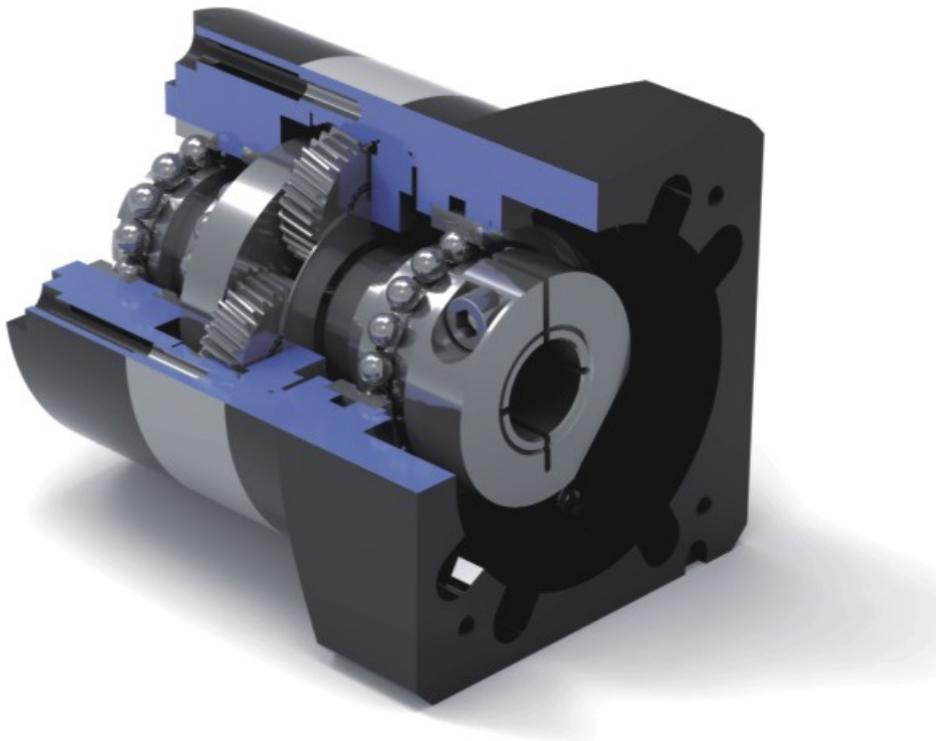
### The Powerful Cantilever Planetary Carrier

The powerful cantilever planetary carrier provide great mechanical support for planetary gears, thus the complete gearbox can reach high level stability. Synthetic grease lubrication allows maintenance free for gearbox whole service life.

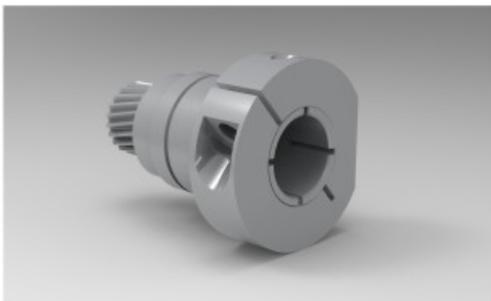


**Gear Grinding and Heat Treatment Technology**

The global leading gear grinding technology brings the great improvement for the tooth profile optimization, with the high level carburizing and quenching heat treatment technology to reach high precision and gear harden performance.



SPLN Series Servo Planetary Gearbox



**Dynamic Balance Clamping and Sealing System**

For the gearbox input dynamic balance clamping design with perfect concentricity to decrease backlash and increase gearbox operation stability. The ultra sealing system offers grease leakage protection and support gearbox to reach IP65.

**SPLN070 1-stage**

		1-stage									
Ratio	i		3	4	5	6	7	8	9	10	
Nominal Output Torque		Nm	35	42	44	40	40	38	36	32	
		in.lb	310	372	389	354	354	336	319	283	
Emergency Stop Torque	$T_{2Max}$	Nm	70	84	88	80	80	76	72	64	
		in.lb	620	743	779	708	708	673	637	566	
Maximum Acceleration Torque	$T_{2a}$	Nm	63	75.6	79.2	72	72	68.4	64.8	57.6	
		in.lb	558	669	701	637	637	605	574	510	
Maximum Torque	$T_{2a}$	Nm	70	84	88	80	80	76	72	64	
		in.lb	620	743	779	708	708	673	637	566	
Permitted Average Input Speed	$n_{1N}$	rpm	4000								
Maximum Input Speed	$n_{1Max}$	rpm	6000								
Mean No Load Running Torque	$T_{012}$	Nm	0.24	0.2	0.17	0.15	0.15	0.15	0.15	0.15	
		in.lb	2.12	1.77	1.50	1.33	1.33	1.33	1.33	1.33	
Maximum Torsional Backlash	$j_i$	arcmin	≤ 8								
Torsional Rigidity	$C_{121}$	Nm/arcmin	3	3	3	3	3	3	3	3	
		in.lb/arcmin	26.55	26.55	26.55	26.55	26.55	26.55	26.55	26.55	
Maximum Radial Load	$F_{2AMax}$	N	550								
		lb <sub>r</sub>	123.64								
Maximum Axial Load	$F_{2CMMax}$	N	375								
		lb <sub>r</sub>	84.30								
Max. Tilting Moment	$M_{2OMax}$	Nm	80								
		in.lb	708.06								
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	0.135	0.093	0.078	0.070	0.069	0.650	0.065	0.065	
Operating Noise Level	$L_{pA}$	dB(A)	< 58								
Efficiency at Full loading	$\eta$	%	97								
Operating Temperature		°C	- 25 to +90								
		F	-13 to +194								
Lubrication			Synthetic Lubrication Grease								
Mouting Position			Any Directions								
Protection Class			IP 65								
Service lifetime	$L_n$	h	20,000(Continuous Operation)								
Weight	$m$	kg	1.3								
		lb <sub>m</sub>	2.86598								

## SPLN070 2-stages

		2-stages									
Ratio	$i$		12	15	16	20	25	32	40	64	
Nominal Output Torque		Nm	37	37	44	44	44	44	44	38	
		in.lb	327	327	389	389	389	389	389	336	
Emergency Stop Torque	$T_{2Max}$	Nm	74	74	88	88	88	88	88	76	
		in.lb	655	655	779	779	779	779	779	673	
Maximum Acceleration Torque	$T_{2B}$	Nm	66.6	66.6	79.2	79.2	79.2	79.2	79.2	68.4	
		in.lb	589	589	701	701	701	701	701	605	
Maximum Torque	$T_{2a}$	Nm	74	74	88	88	88	88	88	76	
		in.lb	655	655	779	779	779	779	779	673	
Permitted Average Input Speed	$n_{1N}$	rpm	4000								
Maximum Input Speed	$n_{1Max}$	rpm	6000								
Mean No Load Running Torque	$T_{012}$	Nm	0.2	0.17	0.2	0.17	0.17	0.15	0.15	0.15	
		in.lb	1.77	1.50	1.77	1.50	1.50	1.33	1.33	1.33	
Maximum Torsional Backlash	$j_i$	arcmin	≤ 10								
Torsional Rigidity	$C_{21}$	Nm/arcmin	3	3	3	3	3	3	3	3	
		in.lb/arcmin	26.55	26.55	26.55	26.55	26.55	26.55	26.55	26.55	
Maximum Radial Load	$F_{2AMax}$	N	550								
		lb <sub>f</sub>	123.64								
Maximum Axial Load	$F_{2OMax}$	N	375								
		lb <sub>f</sub>	84.30								
Max. Tilting Moment	$M_{2OMax}$	Nm	80								
		in.lb	708.06								
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	0.105	0.095	0.088	0.075	0.075	0.064	0.064	0.064	
Operating Noise Level	$L_{pA}$	dB(A)	< 58								
Efficiency at Full loading	$\eta$	%	95								
Operating Temperature		°C	- 25 to +90								
		F	-13 to +194								
Lubrication			Synthetic Lubrication Grease								
Mouting Position			Any Directions								
Protection Class			IP 65								
Service lifetime	$L_n$	h	20,000(Continuous Operation)								
Weight	$m$	kg	1.8								
		lb <sub>m</sub>	3.97								

SPLN Series Servo Planetary Gearbox

**SPLN070 3-stages**

			3-stages							
Ratio	$i$		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	45	45	45	45	45	45	45	38
		in.lb	398	398	398	398	398	398	398	336
Emergency Stop Torque	$T_{2Max}$	Nm	90	90	90	90	90	90	90	76
		in.lb	797	797	797	797	797	797	797	673
Maximum Acceleration Torque	$T_{2a}$	Nm	81	81	81	81	81	81	81	68
		in.lb	717	717	717	717	717	717	717	605
Maximum Torque	$T_{2a}$	Nm	90	90	90	90	90	90	90	76
		in.lb	797	299	299	299	299	299	299	229
Permitted Average Input Speed	$n_{1N}$	rpm	4000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	0.17	0.17	0.17	0.15	0.15	0.15	0.15	0.15
		in.lb	1.50	1.50	1.50	1.33	1.33	1.33	1.33	1.33
Maximum Torsional Backlash	$j_i$	arcmin	≤ 12							
Torsional Rigidity	$C_{121}$	Nm/arcmin	3	3	3	3	3	3	3	3
		in.lb/arcmin	26.55	26.55	26.55	26.55	26.55	26.55	26.55	26.55
Maximum Radial Load	$F_{2AMax}$	N	550							
		lb <sub>r</sub>	123.64							
Maximum Axial Load	$F_{2CMMax}$	N	375							
		lb <sub>r</sub>	84.30							
Max. Tilting Moment	$M_{2AMMax}$	Nm	80							
		in.lb	708.056							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	0.075	0.064	0.064	0.064	0.064	0.064	0.064	0.064
Operating Noise Level	$L_{pA}$	dB(A)	< 58							
Efficiency at Full loading	$\eta$	%	93							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	2							
		lb <sub>m</sub>	4.4092							

## SPLN090 1-stage

		1-stage								
Ratio	i		3	4	5	6	7	8	9	10
Nominal Output Torque		Nm	100	110	115	105	100	95	90	81
		in.lb	885	974	1018	929	885	841	797	717
Emergency Stop Torque	$T_{2Max}$	Nm	200	220	230	210	200	190	180	162
		in.lb	1770	1947	2036	1859	1770	1682	1593	1434
Maximum Acceleration Torque	$T_{2B}$	Nm	180	198	207	189	180	171	162	145.8
		in.lb	1593	1752	1832	1673	1593	1513	1434	1290
Maximum Torque	$T_{2a}$	Nm	200	220	230	210	200	190	180	162
		in.lb	1770	1947	2036	1859	1770	1682	1593	1434
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	0.38	0.36	0.31	0.29	0.25	0.25	0.25	0.25
		in.lb	3.36	3.19	2.74	2.57	2.21	2.21	2.21	2.21
Maximum Torsional Backlash	$j_i$	arcmin	≤ 8							
Torsional Rigidity	$C_{21}$	Nm/arcmin	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
		in.lb/arcmin	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48
Maximum Radial Load	$F_{2AMax}$	N	1020							
		lb <sub>f</sub>	229.30							
Maximum Axial Load	$F_{2OMax}$	N	570							
		lb <sub>f</sub>	128.14							
Max. Tilting Moment	$M_{2OMax}$	Nm	200							
		in.lb	1770.14							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	0.770	0.520	0.450	0.420	0.400	0.390	0.390	0.390
Operating Noise Level	$L_{pA}$	dB(A)	< 60							
Efficiency at Full loading	$\eta$	%	97							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	2.4							
		lb <sub>m</sub>	5.29							

**SPLN090 2-stages**

			2-stages							
Ratio	$i$		12	15	16	20	25	32	40	64
Nominal Output Torque		Nm	100	100	110	110	110	110	110	95
		in.lb	885	885	974	974	974	974	974	841
Emergency Stop Torque	$T_{2Max}$	Nm	200	200	220	220	220	220	220	190
		in.lb	1770	1770	1947	1947	1947	1947	1947	1682
Maximum Acceleration Torque	$T_{2a}$	Nm	180	180	198	198	198	198	198	171
		in.lb	1593	1593	1752	1752	1752	1752	1752	1513
Maximum Torque	$T_{2a}$	Nm	200	200	220	220	220	220	220	190
		in.lb	1770	1770	1947	1947	1947	1947	1947	1682
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	0.36	0.31	0.36	0.31	0.31	0.25	0.25	0.25
		in.lb	3.19	2.74	3.19	2.74	2.74	2.21	2.21	2.21
Maximum Torsional Backlash	$j_i$	arcmin	≤ 10							
Torsional Rigidity	$C_{121}$	Nm/arcmin	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
		in.lb/arcmin	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48
Maximum Radial Load	$F_{2AMax}$	N	1020							
		lb <sub>r</sub>	229.30							
Maximum Axial Load	$F_{2CMMax}$	N	570							
		lb <sub>r</sub>	128.14							
Max. Tilting Moment	$M_{2OMMax}$	Nm	200							
		in.lb	1770.14							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	0.670	0.510	0.500	0.440	0.440	0.390	0.390	0.390
Operating Noise Level	$L_{pA}$	dB(A)	< 60							
Efficiency at Full loading	$\eta$	%	95							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	3.6							
		lb <sub>m</sub>	7.94							

### SPLN090 3-stages

		3-stages								
Ratio	$i$		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	120	120	120	120	120	120	120	95
		in.lb	1062	1062	1062	1062	1062	1062	1062	841
Emergency Stop Torque	$T_{2Max}$	Nm	240	240	240	240	240	240	240	190
		in.lb	2124	2124	2124	2124	2124	2124	2124	1682
Maximum Acceleration Torque	$T_{2B}$	Nm	216	216	216	216	216	216	216	171
		in.lb	1912	1912	1912	1912	1912	1912	1912	1513
Maximum Torque	$T_{2a}$	Nm	240	240	240	240	240	240	240	190
		in.lb	2124	2124	2124	2124	2124	2124	2124	1682
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	0.31	0.31	0.31	0.25	0.25	0.25	0.25	0.25
		in.lb	2.74	2.74	2.74	2.21	2.21	2.21	2.21	2.21
Maximum Torsional Backlash	$j_i$	arcmin	≤ 12							
Torsional Rigidity	$C_{121}$	Nm/arcmin	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
		in.lb/arcmin	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48
Maximum Radial Load	$F_{2AMax}$	N	1020							
		lb <sub>f</sub>	229.30							
Maximum Axial Load	$F_{2OMax}$	N	570							
		lb <sub>f</sub>	128.14							
Max. Tilting Moment	$M_{2OMax}$	Nm	200							
		in.lb	1770.14							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	0.500	0.440	0.700	0.390	0.390	0.390	0.390	0.390
Operating Noise Level	$L_{pA}$	dB(A)	< 60							
Efficiency at Full loading	$\eta$	%	93							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	4.8							
		lb <sub>m</sub>	10.58							

SPLN Series Servo Planetary Gearbox

**SPLN120 1-stage**

		1-stage								
Ratio	i		3	4	5	6	7	8	9	10
Nominal Output Torque		Nm	190	240	245	240	235	210	200	196
		in.lb	1682	2124	2168	2124	2080	1859	1770	1735
Emergency Stop Torque	$T_{2Max}$	Nm	380	480	490	480	470	420	400	392
		in.lb	3363	4248	4337	4248	4160	3717	3540	3469
Maximum Acceleration Torque	$T_{2a}$	Nm	342	432	441	432	423	378	360	352.8
		in.lb	3027	3824	3903	3824	3744	3346	3186	3123
Maximum Torque	$T_{2a}$	Nm	380	480	490	480	470	420	400	392
		in.lb	3363	4248	4337	4248	4160	3717	3540	3469
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	1	0.95	0.85	0.81	0.78	0.78	0.78	0.78
		in.lb	8.85	8.41	7.52	7.17	6.90	6.90	6.90	6.90
Maximum Torsional Backlash	$j_i$	arcmin	≤ 8							
Torsional Rigidity	$C_{121}$	Nm/arcmin	10	10	10	10	10	10	10	10
		in.lb/arcmin	88.51	88.51	88.51	88.51	88.51	88.51	88.51	88.51
Maximum Radial Load	$F_{2AMax}$	N	2070							
		lb <sub>r</sub>	465.34							
Maximum Axial Load	$F_{2CMax}$	N	970							
		lb <sub>r</sub>	218.06							
Max. Tilting Moment	$M_{2AMax}$	Nm	400							
		in.lb	3540.28							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	2.630	1.790	1.530	1.500	1.400	1.320	1.320	1.320
Operating Noise Level	$L_{pA}$	dB(A)	< 62							
Efficiency at Full loading	$\eta$	%	97							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	6							
		lb <sub>m</sub>	13.23							

## SPLN120 2-stages

		2-stages								
Ratio	$i$		12	15	16	20	25	32	40	64
Nominal Output Torque		Nm	210	210	230	230	255	255	250	210
		in.lb	1859	1859	2036	2036	2257	2257	2213	1859
Emergency Stop Torque	$T_{2Max}$	Nm	420	420	460	460	510	510	500	420
		in.lb	3717	3717	4071	4071	4514	4514	4425	3717
Maximum Acceleration Torque	$T_{2B}$	Nm	378	378	414	414	459	459	450	378
		in.lb	3346	3346	3664	3664	4062	4062	3983	3346
Maximum Torque	$T_{2a}$	Nm	420	420	460	460	510	510	500	420
		in.lb	3717	3717	4071	4071	4514	4514	4425	3717
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	0.95	0.85	0.95	0.85	0.85	0.78	0.78	0.78
		in.lb	8.41	7.52	8.41	7.52	7.52	6.90	6.90	6.90
Maximum Torsional Backlash	$j_i$	arcmin	≤ 10							
Torsional Rigidity	$C_{21}$	Nm/arcmin	10	10	10	10	10	10	10	10
		in.lb/arcmin	88.51	88.51	88.51	88.51	88.51	88.51	88.51	88.51
Maximum Radial Load	$F_{2AMax}$	N	2070							
		lb <sub>f</sub>	465.34							
Maximum Axial Load	$F_{2OMax}$	N	970							
		lb <sub>f</sub>	218.06							
Max. Tilting Moment	$M_{2OMax}$	Nm	400							
		in.lb	3540.28							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	1.630	1.670	1.750	1.530	1.490	1.320	1.320	1.320
Operating Noise Level	$L_{pA}$	dB(A)	< 62							
Efficiency at Full loading	$\eta$	%	95							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	9							
		lb <sub>m</sub>	19.84							

SPLN Series Servo Planetary Gearbox

**SPLN120 3-stages**

			3-stages							
Ratio	$i$		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	255	255	255	255	255	255	255	210
		in.lb	2257	2257	2257	2257	2257	2257	2257	1859
Emergency Stop Torque	$T_{2Max}$	Nm	510	510	510	510	510	510	510	420
		in.lb	4514	4514	4514	4514	4514	4514	4514	3717
Maximum Acceleration Torque	$T_{2a}$	Nm	459	459	459	459	459	459	459	378
		in.lb	4062	4062	4062	4062	4062	4062	4062	3346
Maximum Torque	$T_{2a}$	Nm	510	510	510	510	510	510	510	420
		in.lb	4514	4514	4514	4514	4514	4514	4514	3717
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	0.85	0.85	0.85	0.78	0.78	0.78	0.78	0.78
		in.lb	7.52	7.52	7.52	6.90	6.90	6.90	6.90	6.90
Maximum Torsional Backlash	$j_i$	arcmin	≤ 12							
Torsional Rigidity	$C_{121}$	Nm/arcmin	10	10	10	10	10	10	10	10
		in.lb/arcmin	88.51	88.51	88.51	88.51	88.51	88.51	88.51	88.51
Maximum Radial Load	$F_{2AMax}$	N	2070							
		lb <sub>r</sub>	465.34							
Maximum Axial Load	$F_{2CMax}$	N	970							
		lb <sub>r</sub>	218.06							
Max. Tilting Moment	$M_{2AMax}$	Nm	400							
		in.lb	3540.28							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	1.530	1.490	2.570	1.300	1.300	1.300	1.300	1.300
Operating Noise Level	$L_{pA}$	dB(A)	< 62							
Efficiency at Full loading	$\eta$	%	93							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	10.5							
		lb <sub>m</sub>	23.15							

## SPLN160 1-stage

		1-stage								
Ratio	i		3	4	5	6	7	8	9	10
Nominal Output Torque		Nm	440	544	585	500	480	450	415	400
		in.lb	3894	4815	5178	4425	4248	3983	3673	3540
Emergency Stop Torque	$T_{2Max}$	Nm	880	1088	1170	1000	960	900	830	800
		in.lb	7789	9630	10355	8851	8497	7966	7346	7081
Maximum Acceleration Torque	$T_{2B}$	Nm	792	979.2	1053	900	864	810	747	720
		in.lb	7010	8667	9320	7966	7647	7169	6611	6373
Maximum Torque	$T_{2a}$	Nm	880	1088	1170	1000	960	900	830	800
		in.lb	7789	9630	10355	8851	8497	7966	7346	7081
Permitted Average Input Speed	$n_{1a}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	2.55	2.45	2.3	2.2	2.2	2.2	2.2	2.2
		in.lb	22.57	21.68	20.36	19.47	19.47	19.47	19.47	19.47
Maximum Torsional Backlash	$j_i$	arcmin	≤ 8							
Torsional Rigidity	$C_{21}$	Nm/arcmin	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
		in.lb/arcmin	254.02	254.02	254.02	254.02	254.02	254.02	254.02	254.02
Maximum Radial Load	$F_{2AMax}$	N	7300							
		lb <sub>f</sub>	1641.04							
Maximum Axial Load	$F_{2OMax}$	N	6400							
		lb <sub>f</sub>	1438.72							
Max. Tilting Moment	$M_{2OMax}$	Nm	850							
		in.lb	7523.10							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	12.100	7.750	6.000	5.520	5.100	3.740	3.620	3.620
Operating Noise Level	$L_{pA}$	dB(A)	< 68							
Efficiency at Full loading	$\eta$	%	97							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	14.5							
		lb <sub>m</sub>	31.97							

**SPLN160 2-stages**

			2-stages							
Ratio	i		12	15	16	20	25	32	40	64
Nominal Output Torque		Nm	450	450	450	564	608	608	608	450
		in.lb	3983	3983	3983	4992	5381	5381	5381	3983
Emergency Stop Torque	$T_{2Max}$	Nm	900	900	900	1128	1216	1216	1216	900
		in.lb	7966	7966	7966	9984	10762	10762	10762	7966
Maximum Acceleration Torque	$T_{2a}$	Nm	810	810	810	1015.2	1094.4	1094.4	1094.4	810
		in.lb	7169	7169	7169	8985	9686	9686	9686	7169
Maximum Torque	$T_{2a}$	Nm	900	900	900	1128	1216	1216	1216	900
		in.lb	7966	7966	7966	9984	10762	10762	10762	7966
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	2.45	2.3	2.45	2.3	2.3	2.2	2.2	2.2
		in.lb	21.68	20.36	21.68	20.36	20.36	19.47	19.47	19.47
Maximum Torsional Backlash	$j_i$	arcmin	≤ 10							
Torsional Rigidity	$C_{121}$	Nm/arcmin	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
		in.lb/arcmin	254.02	254.02	254.02	254.02	254.02	254.02	254.02	254.02
Maximum Radial Load	$F_{2AMax}$	N	7300							
		lb <sub>r</sub>	1641.04							
Maximum Axial Load	$F_{2CMax}$	N	6400							
		lb <sub>r</sub>	1438.72							
Max. Tilting Moment	$M_{2AMax}$	Nm	850							
		in.lb	7523.10							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	10.100	8.100	7.470	6.650	5.810	6.340	5.360	4.080
Operating Noise Level	$L_{pA}$	dB(A)	< 68							
Efficiency at Full loading	$\eta$	%	95							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	27							
		lb <sub>m</sub>	59.52							

## SPLN160 3-stages

		3-stages								
Ratio	$i$		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	580	580	580	580	608	608	580	450
		in.lb	5133	5133	5133	5133	5381	5381	5133	3983
Emergency Stop Torque	$T_{2Max}$	Nm	1160	1160	1160	1160	1216	1216	1160	900
		in.lb	10267	10267	10267	10267	10762	10762	10267	7966
Maximum Acceleration Torque	$T_{2B}$	Nm	1044	1044	1044	1044	1094.4	1094.4	1044	810
		in.lb	9240	9240	9240	9240	9686	9686	9240	7169
Maximum Torque	$T_{2a}$	Nm	1160	1160	1160	1160	1216	1216	1160	900
		in.lb	10267	10267	10267	10267	10762	10762	10267	7966
Permitted Average Input Speed	$n_{1N}$	rpm	3000							
Maximum Input Speed	$n_{1Max}$	rpm	6000							
Mean No Load Running Torque	$T_{012}$	Nm	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2
		in.lb	20.36	20.36	20.36	19.47	19.47	19.47	19.47	19.47
Maximum Torsional Backlash	$j_i$	arcmin	≤ 12							
Torsional Rigidity	$C_{21}$	Nm/arcmin	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
		in.lb/arcmin	88.51	88.51	88.51	88.51	88.51	88.51	88.51	88.51
Maximum Radial Load	$F_{2AMax}$	N	7300							
		lb <sub>f</sub>	1641.04							
Maximum Axial Load	$F_{2OMax}$	N	6400							
		lb <sub>f</sub>	1438.72							
Max. Tilting Moment	$M_{2OMax}$	Nm	850							
		in.lb	7523.10							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	7.400	7.300	7.300	6.500	6.500	6.500	6.500	6.500
Operating Noise Level	$L_{pA}$	dB(A)	< 68							
Efficiency at Full loading	$\eta$	%	93							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_n$	h	20,000(Continuous Operation)							
Weight	$m$	kg	30							
		lb <sub>m</sub>	66.14							

SPLN Series Servo Planetary Gearbox

**SPLN205 1-stage**

		1-stage									
Ratio	i		3	4	5	6	7	8	9	10	
Nominal Output Torque		Nm	600	1050	1000	800	800	800	710	710	
		in.lb	5310	9293	8851	7081	7081	7081	6284	6284	
Emergency Stop Torque	$T_{2Max}$	Nm	1200	2100	2000	1600	1600	1600	1420	1420	
		in.lb	10621	18586	17701	14161	14161	14161	12568	12568	
Maximum Acceleration Torque	$T_{2a}$	Nm	1080	1890	1800	1440	1440	1440	1278	1278	
		in.lb	9559	16728	15931	12745	12745	12745	11311	11311	
Maximum Torque	$T_{2a}$	Nm	1200	2100	2000	1600	1600	1600	1420	1420	
		in.lb	10621	18586	17701	14161	14161	14161	12568	12568	
Permitted Average Input Speed	$n_{1N}$	rpm	2000								
Maximum Input Speed	$n_{1Max}$	rpm	4000								
Mean No Load Running Torque	$T_{012}$	Nm	3.5	3.3	3.15	3	3	3	3	3	
		in.lb	30.98	29.21	27.88	26.55	26.55	26.55	26.55	26.55	
Maximum Torsional Backlash	$j_i$	arcmin	≤ 8								
Torsional Rigidity	$C_{121}$	Nm/arcmin	120	120	120	120	120	120	120	120	
		in.lb/arcmin	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	
Maximum Radial Load	$F_{2AMax}$	N	12000								
		lb <sub>f</sub>	2697.60								
Maximum Axial Load	$F_{2CMMax}$	N	6800								
		lb <sub>f</sub>	1528.64								
Max. Tilting Moment	$M_{2OMMax}$	Nm	1280								
		in.lb	11328.90								
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	28.980	23.670	22.750	22.480	22.480	22.590	22.590	22.550	
Operating Noise Level	$L_{pA}$	dB(A)	< 70								
Efficiency at Full loading	$\eta$	%	97								
Operating Temperature		°C	- 25 to +90								
		F	-13 to +194								
Lubrication			Synthetic Lubrication Grease								
Mouting Position			Any Directions								
Protection Class			IP 65								
Service lifetime	$L_h$	h	20,000(Continuous Operation)								
Weight	$m$	kg	30								
		lb <sub>m</sub>	66.14								

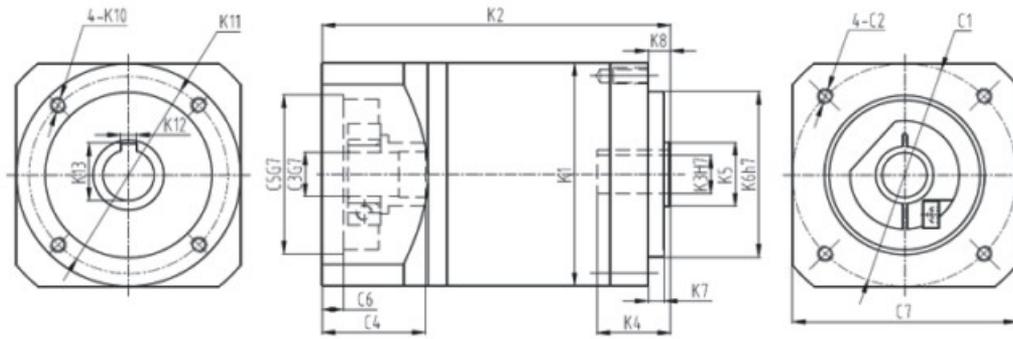
## SPLN205 2-stages

		2-stages									
Ratio	i		12	15	16	20	25	32	40	64	
Nominal Output Torque		Nm	650	650	1050	1000	1000	1050	1000	800	
		in.lb	5753	5753	9293	8851	8851	9293	8851	7081	
Emergency Stop Torque	$T_{2Max}$	Nm	1300	1300	2100	2000	2000	2100	2000	1600	
		in.lb	11506	11506	18586	17701	17701	18586	17701	14161	
Maximum Acceleration Torque	$T_{2B}$	Nm	1170	1170	1890	1800	1800	1890	1800	1440	
		in.lb	10355	10355	16728	15931	15931	16728	15931	12745	
Maximum Torque	$T_{2a}$	Nm	1300	1300	2100	2000	2000	2100	2000	1600	
		in.lb	11506	11506	18586	17701	17701	18586	17701	14161	
Permitted Average Input Speed	$n_{1N}$	rpm	2000								
Maximum Input Speed	$n_{1Max}$	rpm	4000								
Mean No Load Running Torque	$T_{012}$	Nm	2.45	2.3	2.45	2.3	2.3	2.2	2.2	2.2	
		in.lb	21.68	20.36	21.68	20.36	20.36	19.47	19.47	19.47	
Maximum Torsional Backlash	$j_i$	arcmin	≤ 10								
Torsional Rigidity	$C_{21}$	Nm/arcmin	120	120	120	120	120	120	120	120	
		in.lb/arcmin	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	
Maximum Radial Load	$F_{2AMax}$	N	12000								
		lb <sub>f</sub>	2697.60								
Maximum Axial Load	$F_{2OMax}$	N	6800								
		lb <sub>f</sub>	1528.64								
Max. Tilting Moment	$M_{2KMax}$	Nm	1280								
		in.lb	11328.90								
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	18.980	16.980	7.540	7.420	7.540	7.140	7.140	7.540	
Operating Noise Level	$L_{pA}$	dB(A)	< 70								
Efficiency at Full loading	$\eta$	%	95								
Operating Temperature		°C	- 25 to +90								
		F	-13 to +194								
Lubrication			Synthetic Lubrication Grease								
Mouting Position			Any Directions								
Protection Class			IP 65								
Service lifetime	$L_n$	h	20,000(Continuous Operation)								
Weight	$m$	kg	38								
		lb <sub>m</sub>	83.77								

SPLN Series Servo Planetary Gearbox

**SPLN205 3-stages**

			3-stages							
Ratio	$i$		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	1000	1000	1000	1000	1000	1000	1000	800
		in.lb	8851	8851	8851	8851	8851	8851	8851	7081
Emergency Stop Torque	$T_{2Max}$	Nm	2000	2000	2000	2000	2000	2000	2000	1600
		in.lb	17701	17701	17701	17701	17701	17701	17701	14161
Maximum Acceleration Torque	$T_{2a}$	Nm	1800	1800	1800	1800	1800	1800	1800	1440
		in.lb	15931	15931	15931	15931	15931	15931	15931	12745
Maximum Torque	$T_{2a}$	Nm	2000	2000	2000	2000	2000	2000	2000	1600
		in.lb	17701	17701	17701	17701	17701	17701	17701	14161
Permitted Average Input Speed	$n_{1N}$	rpm	2000							
Maximum Input Speed	$n_{1Max}$	rpm	4000							
Mean No Load Running Torque	$T_{012}$	Nm	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2
		in.lb	20.36	20.36	20.36	19.47	19.47	19.47	19.47	19.47
Maximum Torsional Backlash	$j_i$	arcmin	≤ 12							
Torsional Rigidity	$C_{121}$	Nm/arcmin	120	120	120	120	120	120	120	120
		in.lb/arcmin	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08	1062.08
Maximum Radial Load	$F_{2AMax}$	N	12000							
		lb <sub>f</sub>	2697.60							
Maximum Axial Load	$F_{2CMMax}$	N	6800							
		lb <sub>f</sub>	1528.64							
Max. Tilting Moment	$M_{2OMMax}$	Nm	1280							
		in.lb	11328.90							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	7.540	7.420	7.420	7.140	7.140	7.140	7.140	7.14
Operating Noise Level	$L_{pA}$	dB(A)	< 70							
Efficiency at Full loading	$\eta$	%	93							
Operating Temperature		°C	- 25 to +90							
		F	-13 to +194							
Lubrication			Synthetic Lubrication Grease							
Mouting Position			Any Directions							
Protection Class			IP 65							
Service lifetime	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	47							
		lb <sub>m</sub>	103.62							



Model	SPLN070			SPLN090			SPLN120			SPLN160			SPLN205		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	Φ70			Φ89			Φ115.5			Φ160			Φ205		
	Φ2.76			Φ3.5			Φ4.55			Φ6.30			Φ8.07		
K2	92	115.7	139.4	113	144.3	175.6	148.5	183.5	218.5	195.5	256.5	276	208	268	327
	3.62	4.56	5.49	4.45	5.68	6.91	5.85	7.22	8.6	7.70	10.10	10.87	8.19	10.55	12.87
K3	Φ12			Φ16			Φ20			Φ38			M2X24XP30XH6		
	Φ0.47			Φ0.63			Φ0.79			Φ1.50					
K4	23			25			36			45			48		
	0.91			0.99			1.42			1.77			1.89		
K5	Φ20			Φ30			Φ35			Φ60			Φ60		
	Φ0.79			Φ1.18			Φ1.38			Φ2.36			Φ2.36		
K6	Φ40			Φ60			Φ80			Φ130			Φ160		
	Φ1.57			Φ2.36			Φ3.15			Φ5.12			Φ6.30		
K7	3			3			4			5			15		
	0.12			0.12			0.16			0.2			0.59		
K8	5			4			5			7			20		
	0.20			0.16			0.20			0.28			0.79		
K10	M5X12			M6X10			M10X20			M12X20			M12X22		
K11	Φ52			Φ70			Φ100			Φ145			Φ184		
	Φ2.05			Φ2.76			Φ3.94			Φ5.71			Φ7.24		
K12	4			5			6			10			GB/T3478.1		
	0.16			0.20			0.24			0.39					
K13	13.8			18.3			28.3			41.3			GB/T3478.1		
	0.54			0.72			1.11			1.63					
C1	Φ70			Φ90			Φ145			Φ200	Φ145	Φ215	Φ200		
	Φ2.76			Φ3.54			Φ5.71			Φ7.87	Φ5.71	Φ8.46	Φ7.87		
C2	M5X12			M6X15			M8X20			M12X25	M8X20	M12X25	M12X25		
C3	Φ14			Φ19			Φ24			Φ35	Φ24	Φ42	Φ35		
	Φ0.55			Φ0.75			Φ0.94			Φ1.38	Φ0.94	Φ1.65	Φ1.38		
C4	32.1			41.6			56.3			82	61.3	82.5	82		
	1.26			1.64			2.22			3.23	2.41	3.25	3.23		
C5	Φ50			Φ70			Φ110			Φ114.3	Φ110	Φ180	Φ114.3		
	Φ1.97			Φ2.76			Φ4.33			Φ4.5	Φ4.33	Φ7.09	Φ4.5		
C6	6.5			6.5			8			8	8	8	8		
	0.26			0.26			0.31			0.31	0.31	0.31	0.31		
C7	70			89			120			175	120	190	175		
	2.76			3.5			4.72			6.89	4.72	7.48	6.89		

The dimensions modified as per the applied motor flanges.

You can get the specific gearbox drawing solution by KDP(Kofon Design Programme) on line from our website: [www.kofon-motion.com](http://www.kofon-motion.com)

Technical Memo

