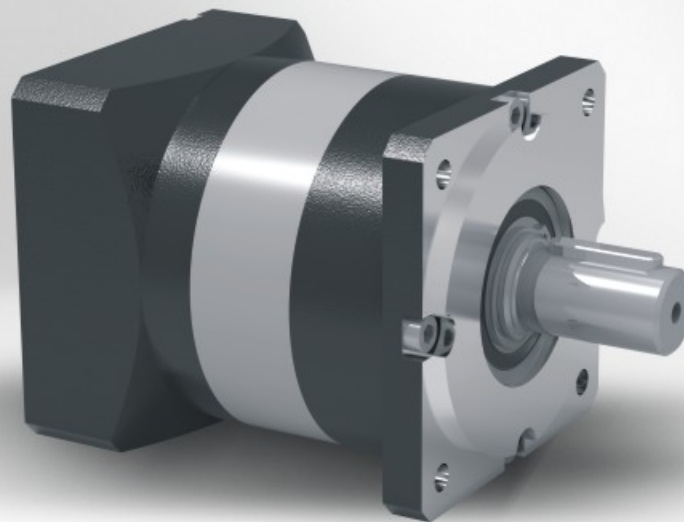


# SPLF

Powerful. Precision. Reliable

► Servo Planetary Gearbox

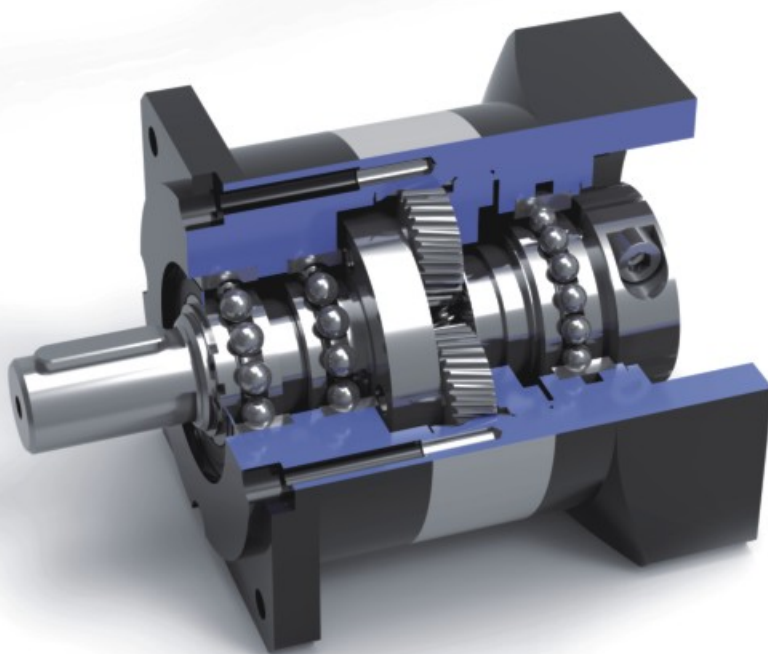
Valued Gearbox Solution





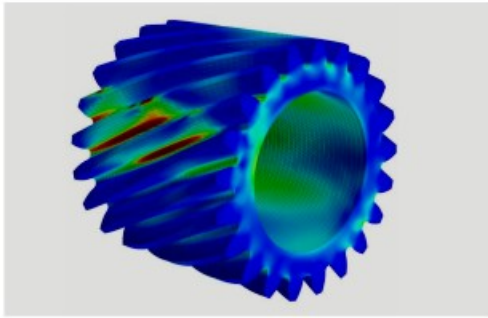
### Helical Gear System Technology

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.



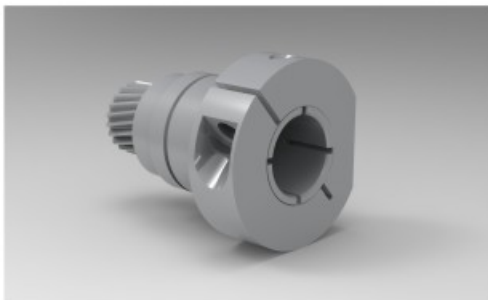
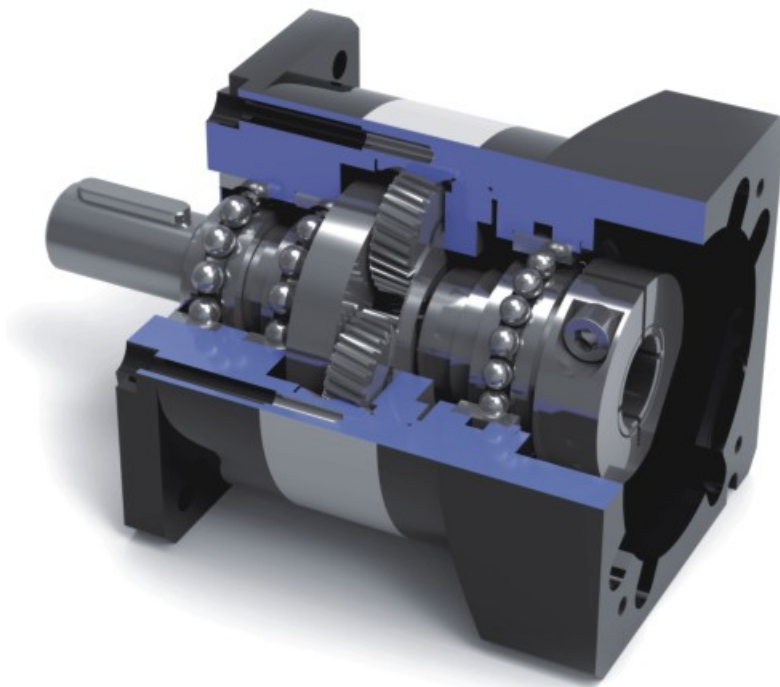
### The Powerful Cantilever Planetary Carrier

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.



### 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.

**SPLF040 1-stage**

			1-stage							
Ratio	i		3	4	5	6	7	8	9	10
Nominal Output Torque		Nm	13	17	17	--	--	12	--	--
		in.lb	115	150	150	--	--	106	--	--
Emergency Stop Torque	$T_{250t}$	Nm	26	34	34	--	--	24	--	--
		in.lb	230	301	301	--	--	212	--	--
Maximum Acceleration Torque	$T_{25t}$	Nm	23.4	30.6	30.6	--	--	21.6	--	--
		in.lb	207	271	271	--	--	191	--	--
Maximum Torque	$T_{2t}$	Nm	26	34	34	--	--	24	--	--
		in.lb	230	301	301	--	--	212	--	--
Permitted Average Input Speed	$n_{1N}$	rpm	4000							
Maximum Input Speed	$n_{1Max}$	rpm	8000							
Mean No Load Running Torque	$T_{012}$	Nm	0.022	0.019	0.017	--	--	0.017	--	--
		in.lb	0.19	0.17	0.15	--	--	0.15	--	--
Maximum Torsional Backlash	$j_t$	arcmin	$\leq 12$							
Torsional Rigidity	$C_{121}$	Nm/arcmin	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
		in.lb/arcmin	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20
Maximum Radial Load	$F_{2dMax}$	N	385							
		lb <sub>f</sub>	86.5							
Maximum Axial Load	$F_{2cMax}$	N	250							
		lb <sub>f</sub>	56.2							
Max. Tilting Moment	$M_{20dMax}$	Nm	30							
		in.lb	265.52							
Mass Moment of Inertia	$J_i$	kgcm <sup>2</sup>	0.031	0.022	0.019	--	--	0.017	--	--
Operating Noise Level	$L_{pA}$	dB(A)	< 55							
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	0.45							
		lb <sub>m</sub>	0.99							

## SPLF040 2-stages

			2-stages							
Ratio	i		12	15	16	20	25	32	40	64
Nominal Output Torque		Nm	16	16	16	17	17	17	17	13
		in.lb	142	142	142	150	150	150	150	115
Emergency Stop Torque	$T_{2Nst}$	Nm	32	32	32	34	34	34	34	26
		in.lb	283	283	283	301	301	301	301	230
Maximum Acceleration Torque	$T_{2B}$	Nm	28.8	28.8	28.8	30.6	30.6	30.6	30.6	23.4
		in.lb	255	255	255	271	271	271	271	207
Maximum Torque	$T_{2c}$	Nm	32	32	32	34	34	34	34	26
		in.lb	283	283	283	301	301	301	301	230
Permitted Average Input Speed	$n_{1N}$	rpm	4000							
Maximum Input Speed	$n_{1Max}$	rpm	8000							
Mean No Load Running Torque	$T_{012}$	Nm	0.019	0.017	0.019	0.017	0.017	0.017	0.017	0.017
		in.lb	0.17	0.15	0.17	0.15	0.15	0.15	0.15	0.15
Maximum Torsional Backlash	$j_1$	arcmin	≤ 15							
Torsional Rigidity	$C_{121}$	Nm/arcmin	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
		in.lb/arcmin	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20
Maximum Radial Load	$F_{2AMax}$	N	385							
		lb <sub>r</sub>	86.5							
Maximum Axial Load	$F_{2QMax}$	N	250							
		lb <sub>i</sub>	56.2							
Max. Tilting Moment	$M_{2KMax}$	Nm	30							
		in.lb	265.52							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	0.031	0.029	0.023	0.022	0.019	0.019	0.017	0.016
Operating Noise Level	$L_{PA}$	dB(A)	< 55							
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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	0.55							
		lb <sub>m</sub>	1.21							



**SPLF040 3-stages**

			3-stages							
Ratio	$i$		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	17	17	17	17	17	17	17	13
		in.lb	150	150	150	150	150	150	150	115
Emergency Stop Torque	$T_{2Max}$	Nm	34	34	34	34	34	34	34	26
		in.lb	301	301	301	301	301	301	301	230
Maximum Acceleration Torque	$T_{2a}$	Nm	30.6	30.6	30.6	30.6	30.6	30.6	30.6	23.4
		in.lb	271	271	271	271	271	271	271	207
Maximum Torque	$T_{2a}$	Nm	34	34	34	34	34	34	34	26
		in.lb	301	299	299	299	299	299	299	229
Permitted Average Input Speed	$n_{1N}$	rpm	4000							
Maximum Input Speed	$n_{1Max}$	rpm	8000							
Mean No Load Running Torque	$T_{012}$	Nm	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
		in.lb	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Maximum Torsional Backlash	$j_t$	arcmin	$\leq 17$							
Torsional Rigidity	$C_{121}$	Nm/arcmin	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
		in.lb/arcmin	6.20	6.20	6.20	6.20	6.20	6.20	6.20	6.20
Maximum Radial Load	$F_{2Max}$	N	385							
		lb <sub>f</sub>	86.5							
Maximum Axial Load	$F_{20Max}$	N	250							
		lb <sub>f</sub>	56.2							
Max. Tilting Moment	$M_{20Max}$	Nm	30							
		in.lb	265.52							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	0.029	0.019	0.019	0.029	0.016	0.016	0.016	0.016
Operating Noise Level	$L_{pA}$	dB(A)	< 55							
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	0.65							
		lb <sub>m</sub>	1.43							

## SPLF060 1-stage

			1-stage							
Ratio	i		3	4	5	6	7	8	9	10
Nominal Output Torque		Nm	28	36	37	37	37	32	30	25
		in.lb	248	319	327	327	327	283	266	221
Emergency Stop Torque	$T_{2Nst}$	Nm	56	72	74	74	74	64	60	50
		in.lb	496	637	655	655	655	566	531	443
Maximum Acceleration Torque	$T_{2B}$	Nm	50.4	64.8	66.6	66.6	66.6	57.6	54	45
		in.lb	446	574	589	589	589	510	478	398
Maximum Torque	$T_{2c}$	Nm	56	72	74	74	74	64	60	50
		in.lb	496	637	655	655	655	566	531	443
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	$j_1$	arcmin	≤ 8							
Torsional Rigidity	$C_{121}$	Nm/arcmin	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
		in.lb/arcmin	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13
Maximum Radial Load	$F_{2AMax}$	N	430							
		lb <sub>r</sub>	96.66							
Maximum Axial Load	$F_{2OMax}$	N	320							
		lb <sub>i</sub>	71.94							
Max. Tilting Moment	$M_{2KMax}$	Nm	80							
		in.lb	708.06							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	0.135	0.093	0.078	0.070	0.069	0.065	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	1.1							
		lb <sub>m</sub>	2.43							

**SPLF060 2-stages**

			2-stages							
Ratio	i		12	15	16	20	25	32	40	64
Nominal Output Torque		Nm	30	31	42	42	42	42	42	33
		in.lb	266	274	372	372	372	372	372	292
Emergency Stop Torque	$T_{250t}$	Nm	60	62	84	84	84	84	84	66
		in.lb	531	549	743	743	743	743	743	584
Maximum Acceleration Torque	$T_{25t}$	Nm	54	55.8	75.6	75.6	75.6	75.6	75.6	59.4
		in.lb	478	494	669	669	669	669	669	526
Maximum Torque	$T_{2s}$	Nm	60	62	84	84	84	84	84	66
		in.lb	531	549	743	743	743	743	743	584
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	$j_t$	arcmin	$\leq 10$							
Torsional Rigidity	$C_{121}$	Nm/arcmin	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
		in.lb/arcmin	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13
Maximum Radial Load	$F_{2dMax}$	N	430							
		lb <sub>f</sub>	96.66							
Maximum Axial Load	$F_{2oMax}$	N	320							
		lb <sub>f</sub>	71.94							
Max. Tilting Moment	$M_{2oMax}$	Nm	80							
		in.lb	708.056							
Mass Moment of Inertia	$j_i$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	1.25							
		lb <sub>m</sub>	2.76							



## SPLF060 3-stages

			3-stages							
Ratio	i		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	42	42	42	42	42	42	42	33
		in.lb	372	372	372	372	372	372	372	292
Emergency Stop Torque	$T_{2Nst}$	Nm	84	84	84	84	84	84	84	66
		in.lb	743	743	743	743	743	743	743	584
Maximum Acceleration Torque	$T_{2B}$	Nm	75.6	75.6	75.6	75.6	75.6	75.6	75.6	59.4
		in.lb	669	669	669	669	669	669	669	526
Maximum Torque	$T_{2w}$	Nm	84	84	84	84	84	84	84	66
		in.lb	743	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	$j_1$	arcmin	≤ 12							
Torsional Rigidity	$C_{121}$	Nm/arcmin	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
		in.lb/arcmin	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13
Maximum Radial Load	$F_{2AMax}$	N	430							
		lb <sub>r</sub>	96.66							
Maximum Axial Load	$F_{2OMax}$	N	320							
		lb <sub>i</sub>	71.94							
Max. Tilting Moment	$M_{2KMax}$	Nm	80							
		in.lb	708.06							
Mass Moment of Inertia	$j_1$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	1.5							
		lb <sub>m</sub>	3.31							

**SPLF070 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	$j_t$	arcmin	$\leq 8$							
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	$F_{2Max}$	N	550							
		lb <sub>f</sub>	123.64							
Maximum Axial Load	$F_{20Max}$	N	375							
		lb <sub>f</sub>	84.3							
Max. Tilting Moment	$M_{20Max}$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	1.5							
		lb <sub>m</sub>	3.31							

## SPLF070 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	$T_{2Nst}$	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	$T_{2c}$	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	$j_1$	arcmin	≤ 10							
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	$F_{2QMax}$	N	375							
		lb <sub>i</sub>	84.3							
Max. Tilting Moment	$M_{2KMax}$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	2.1							
		lb <sub>m</sub>	4.63							

**SPLF070 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	68.4
		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	$j_t$	arcmin	$\leq 12$							
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	$F_{2Max}$	N	550							
		lb <sub>f</sub>	123.64							
Maximum Axial Load	$F_{20Max}$	N	375							
		lb <sub>f</sub>	84.3							
Max. Tilting Moment	$M_{20Max}$	Nm	80							
		in.lb	708.06							
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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	2.5							
		lb <sub>m</sub>	5.51							

## SPLF080 1-stage

			1-stage							
Ratio	i		3	4	5	6	7	8	9	10
Nominal Output Torque		Nm	75	90	95	85	82	80	78	65
		in.lb	664	797	841	752	726	708	690	575
Emergency Stop Torque	$T_{2Nst}$	Nm	150	180	190	170	164	160	156	130
		in.lb	1328	1593	1682	1505	1452	1416	1381	1151
Maximum Acceleration Torque	$T_{2B}$	Nm	135	162	171	153	147.6	144	140.4	117
		in.lb	1195	1434	1513	1354	1306	1275	1243	1036
Maximum Torque	$T_{2c}$	Nm	150	180	190	170	164	160	156	130
		in.lb	1328	1593	1682	1505	1452	1416	1381	1151
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	$j_1$	arcmin	≤ 8							
Torsional Rigidity	$C_{121}$	Nm/arcmin	4	4	4	4	4	4	4	4
		in.lb/arcmin	35.40	35.40	35.40	35.40	35.40	35.40	35.40	35.40
Maximum Radial Load	$F_{2AMax}$	N	640							
		lb <sub>r</sub>	143.87							
Maximum Axial Load	$F_{2OMax}$	N	420							
		lb <sub>i</sub>	94.42							
Max. Tilting Moment	$M_{2KMax}$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	2.2							
		lb <sub>m</sub>	4.85							



**SPLF080 2-stages**

			2-stages							
Ratio	i		12	15	16	20	25	32	40	64
Nominal Output Torque		Nm	80	90	90	90	90	90	90	80
		in.lb	708	797	797	797	797	797	797	708
Emergency Stop Torque	$T_{2Max}$	Nm	160	180	180	180	180	180	180	160
		in.lb	1416	1593	1593	1593	1593	1593	1593	1416
Maximum Acceleration Torque	$T_{2a}$	Nm	144	162	162	162	162	162	162	144
		in.lb	1275	1434	1434	1434	1434	1434	1434	1275
Maximum Torque	$T_{2a}$	Nm	160	180	180	180	180	180	180	160
		in.lb	1416	1593	1593	1593	1593	1593	1593	1416
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	$j_t$	arcmin	$\leq 10$							
Torsional Rigidity	$C_{121}$	Nm/arcmin	4	4	4	4	4	4	4	4
		in.lb/arcmin	35.40	35.40	35.40	35.40	35.40	35.40	35.40	35.40
Maximum Radial Load	$F_{2Max}$	N	640							
		lb <sub>f</sub>	143.87							
Maximum Axial Load	$F_{20Max}$	N	420							
		lb <sub>f</sub>	94.42							
Max. Tilting Moment	$M_{20Max}$	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							
		lb <sub>m</sub>	6.61							

## SPLF080 3-stages

			3-stages							
Ratio	i		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	95	95	95	95	95	95	95	82
		in.lb	841	841	841	841	841	841	841	726
Emergency Stop Torque	$T_{2Nst}$	Nm	190	190	190	190	190	190	190	164
		in.lb	1682	1682	1682	1682	1682	1682	1682	1452
Maximum Acceleration Torque	$T_{2B}$	Nm	171	171	171	171	171	171	171	147.6
		in.lb	1513	1513	1513	1513	1513	1513	1513	1306
Maximum Torque	$T_{2c}$	Nm	190	190	190	190	190	190	190	164
		in.lb	1682	299	299	299	299	299	299	229
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	$j_1$	arcmin	≤ 12							
Torsional Rigidity	$C_{121}$	Nm/arcmin	4	4	4	4	4	4	4	4
		in.lb/arcmin	35.40	35.40	35.40	35.40	35.40	35.40	35.40	35.40
Maximum Radial Load	$F_{2AMax}$	N	640							
		lb <sub>r</sub>	143.87							
Maximum Axial Load	$F_{2OMax}$	N	420							
		lb <sub>i</sub>	94.42							
Max. Tilting Moment	$M_{2KMax}$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	3.7							
		lb <sub>m</sub>	8.16							

**SPLF090 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	$T_{2a}$	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	$j_t$	arcmin	$\leq 8$							
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	$F_{2Max}$	N	1020							
		lb <sub>f</sub>	229.30							
Maximum Axial Load	$F_{20Max}$	N	570							
		lb <sub>f</sub>	128.14							
Max. Tilting Moment	$M_{20Max}$	Nm	200							
		in.lb	1770.14							
Mass Moment of Inertia	$j_i$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	2.9							
		lb <sub>m</sub>	6.39							

## SPLF090 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	$T_{2Nst}$	Nm	200	200	220	220	220	220	220	190
		in.lb	1770	1770	1947	1947	1947	1947	1947	1682
Maximum Acceleration Torque	$T_{2B}$	Nm	180	180	198	198	198	198	198	171
		in.lb	1593	1593	1752	1752	1752	1752	1752	1513
Maximum Torque	$T_{2c}$	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	$j_1$	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	$F_{2OMax}$	N	570							
		lb <sub>a</sub>	128.14							
Max. Tilting Moment	$M_{2KMax}$	Nm	200							
		in.lb	1770.14							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	0.670	0.510	0.500	0.440	0.440	0.390	0.390	0.39
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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	4							
		lb <sub>m</sub>	8.82							

**SPLF090 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	$T_{250t}$	Nm	240	240	240	240	240	240	240	190
		in.lb	2124	2124	2124	2124	2124	2124	2124	1682
Maximum Acceleration Torque	$T_{25t}$	Nm	216	216	216	216	216	216	216	171
		in.lb	1912	1912	1912	1912	1912	1912	1912	1513
Maximum Torque	$T_{2t}$	Nm	240	240	240	240	240	240	240	190
		in.lb	797	797	797	797	797	797	797	673
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	$j_t$	arcmin	$\leq 12$							
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	$F_{2Max}$	N	1020							
		lb <sub>f</sub>	229.30							
Maximum Axial Load	$F_{20Max}$	N	570							
		lb <sub>f</sub>	128.14							
Max. Tilting Moment	$M_{20Max}$	Nm	200							
		in.lb	1770.14							
Mass Moment of Inertia	$j_i$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	5.2							
		lb <sub>m</sub>	11.46							



## SPLF120 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	$T_{2Nst}$	Nm	380	480	490	480	470	420	400	392
		in.lb	3363	4248	4337	4248	4160	3717	3540	3469
Maximum Acceleration Torque	$T_{2B}$	Nm	342	432	441	432	423	378	360	352.8
		in.lb	3027	3824	3903	3824	3744	3346	3186	3123
Maximum Torque	$T_{2c}$	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	$j_1$	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	$F_{2OMax}$	N	970							
		lb <sub>i</sub>	218.06							
Max. Tilting Moment	$M_{2KMax}$	Nm	400							
		in.lb	3540.28							
Mass Moment of Inertia	$j_1$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	7							
		lb <sub>m</sub>	15.43							

**SPLF120 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	$T_{2a}$	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	$j_t$	arcmin	$\leq 10$							
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	$F_{2Max}$	N	2070							
		lb <sub>f</sub>	465.34							
Maximum Axial Load	$F_{20Max}$	N	970							
		lb <sub>f</sub>	218.06							
Max. Tilting Moment	$M_{20Max}$	Nm	400							
		in.lb	3540.28							
Mass Moment of Inertia	$j_i$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	10							
		lb <sub>m</sub>	22.05							

## SPLF120 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	$T_{2Nst}$	Nm	510	510	510	510	510	510	510	420
		in.lb	4514	4514	4514	4514	4514	4514	4514	3717
Maximum Acceleration Torque	$T_{2B}$	Nm	459	459	459	459	459	459	459	378
		in.lb	4062	4062	4062	4062	4062	4062	4062	3346
Maximum Torque	$T_{2w}$	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	$j_1$	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	$F_{2QMax}$	N	970							
		lb <sub>i</sub>	218.06							
Max. Tilting Moment	$M_{2KMax}$	Nm	400							
		in.lb	3540.28							
Mass Moment of Inertia	$j_1$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	11.5							
		lb <sub>m</sub>	25.35							

**SPLF160 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	$T_{2a}$	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	$n_{1N}$	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	$j_t$	arcmin	$\leq 8$							
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	$F_{2Max}$	N	7300							
		lb <sub>f</sub>	1641.04							
Maximum Axial Load	$F_{20Max}$	N	6400							
		lb <sub>f</sub>	1438.72							
Max. Tilting Moment	$M_{20Max}$	Nm	850							
		in.lb	7523.10							
Mass Moment of Inertia	$j_i$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	17.5							
		lb <sub>m</sub>	38.58							

## SPLF160 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	$T_{2Nst}$	Nm	900	900	900	1128	1216	1216	1216	900
		in.lb	7966	7966	7966	9984	10762	10762	10762	7966
Maximum Acceleration Torque	$T_{2B}$	Nm	810	810	810	1015	1094	1094	1094	810
		in.lb	7169	7169	7169	8985	9686	9686	9686	7169
Maximum Torque	$T_{2c}$	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	$j_1$	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	$F_{2OMax}$	N	6400							
		lb <sub>i</sub>	1438.72							
Max. Tilting Moment	$M_{2KMax}$	Nm	850							
		in.lb	7523.10							
Mass Moment of Inertia	$j_1$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	30							
		lb <sub>m</sub>	66.14							



## SPLF160 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	$T_{2a}$	Nm	1044	1044	1044	1044	1094	1094	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	$j_t$	arcmin	$\leq 12$							
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	88.51	88.51	88.51	88.51	88.51	88.51	88.51	88.51
Maximum Radial Load	$F_{2Max}$	N	7300							
		lb <sub>f</sub>	1641.04							
Maximum Axial Load	$F_{20Max}$	N	6400							
		lb <sub>f</sub>	1438.72							
Max. Tilting Moment	$M_{20Max}$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	32.5							
		lb <sub>m</sub>	71.65							

## SPLF205 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	$T_{2Nst}$	Nm	1200	2100	2000	1600	1600	1600	1420	1420
		in.lb	10621	18586	17701	14161	14161	14161	12568	12568
Maximum Acceleration Torque	$T_{2B}$	Nm	1080	1890	1800	1440	1440	1440	1278	1278
		in.lb	9559	16728	15931	12745	12745	12745	11311	11311
Maximum Torque	$T_{2c}$	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	$j_1$	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>r</sub>	2697.60							
Maximum Axial Load	$F_{2OMax}$	N	6800							
		lb <sub>i</sub>	1528.64							
Max. Tilting Moment	$M_{2KMax}$	Nm	1280							
		in.lb	11328.90							
Mass Moment of Inertia	$j_1$	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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	32							
		lb <sub>m</sub>	70.55							

**SPLF205 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	$T_{2a}$	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	$j_t$	arcmin	$\leq 10$							
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	$F_{2Max}$	N	12000							
		lb <sub>f</sub>	2697.60							
Maximum Axial Load	$F_{20Max}$	N	6800							
		lb <sub>f</sub>	1528.64							
Max. Tilting Moment	$M_{20Max}$	Nm	1280							
		in.lb	11328.90							
Mass Moment of Inertia	$j_i$	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	$L_h$	h	20,000(Continuous Operation)							
Weight	$m$	kg	40							
		lb <sub>m</sub>	88.18							

## SPLF205 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	$T_{2Nst}$	Nm	2000	2000	2000	2000	2000	2000	2000	1600
		in.lb	17701	17701	17701	17701	17701	17701	17701	14161
Maximum Acceleration Torque	$T_{2B}$	Nm	1800	1800	1800	1800	1800	1800	1800	1440
		in.lb	15931	15931	15931	15931	15931	15931	15931	12745
Maximum Torque	$T_{2w}$	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	$j_1$	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>r</sub>	2697.60							
Maximum Axial Load	$F_{2QMax}$	N	6800							
		lb <sub>i</sub>	1528.64							
Max. Tilting Moment	$M_{2KMax}$	Nm	1280							
		in.lb	11328.90							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	7.540	7.420	7.420	7.140	7.140	7.140	7.140	7.140
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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	49							
		lb <sub>m</sub>	108.03							

**SPLF235 1-stage**

			1-stage							
Ratio	i		3	4	5	6	7	8	9	10
Nominal Output Torque		Nm	1000	1600	1850	1650	1550	1350	1300	1300
		in.lb	8851	14161	16374	14604	13719	11948	11506	11506
Emergency Stop Torque	$T_{2Max}$	Nm	2000	3200	3700	3300	3100	2700	2600	2600
		in.lb	17701	28322	32748	29207	27437	23897	23012	23012
Maximum Acceleration Torque	$T_{2a}$	Nm	1800	2880	3330	2970	2790	2430	2340	2340
		in.lb	15931	25490	29473	26287	24693	21507	20711	20711
Maximum Torque	$T_{2a}$	Nm	2000	3200	3700	3300	3100	2700	2600	2600
		in.lb	17701	28322	32748	29207	27437	23897	23012	23012
Permitted Average Input Speed	$n_{1N}$	rpm	1500							
Maximum Input Speed	$n_{1Max}$	rpm	3000							
Mean No Load Running Torque	$T_{012}$	Nm	5.2	5	4.85	4.67	4.67	4.67	4.67	4.67
		in.lb	46.02	44.25	42.93	41.33	41.33	41.33	41.33	41.33
Maximum Torsional Backlash	$j_t$	arcmin	$\leq 8$							
Torsional Rigidity	$C_{121}$	Nm/arcmin	200	200	200	200	200	200	200	200
		in.lb/arcmin	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14
Maximum Radial Load	$F_{2Max}$	N	14000							
		lb <sub>f</sub>	3147.20							
Maximum Axial Load	$F_{20Max}$	N	7800							
		lb <sub>f</sub>	1753.44							
Max. Tilting Moment	$M_{20Max}$	Nm	2350							
		in.lb	20799.15							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	69.610	54.370	53.270	50.840	50.840	50.840	50.840	50.560
Operating Noise Level	$L_{pA}$	dB(A)	< 72							
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	54							
		lb <sub>m</sub>	119.05							

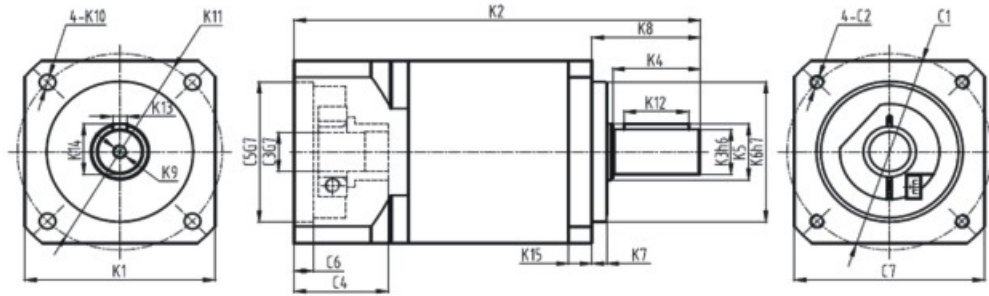


## SPLF235 2-stages

			2-stages							
Ratio	i		12	15	16	20	25	32	40	64
Nominal Output Torque		Nm	1000	1000	1600	1850	1850	1800	1850	1350
		in.lb	8851	8851	14161	16374	16374	15931	16374	11948
Emergency Stop Torque	$T_{2Nst}$	Nm	2000	2000	3200	3700	3700	3600	3700	2700
		in.lb	17701	17701	28322	32748	32748	31863	32748	23897
Maximum Acceleration Torque	$T_{2B}$	Nm	1800	1800	2880	3330	3330	3240	3330	2430
		in.lb	15931	15931	25490	29473	29473	28676	29473	21507
Maximum Torque	$T_{2e}$	Nm	2000	2000	3200	3700	3700	3600	3700	2700
		in.lb	17701	17701	28322	32748	32748	31863	32748	23897
Permitted Average Input Speed	$n_{1N}$	rpm	1500							
Maximum Input Speed	$n_{1Max}$	rpm	3000							
Mean No Load Running Torque	$T_{012}$	Nm	3.3	3.15	3.3	3.15	3.15	3	3	3
		in.lb	29.21	27.88	29.21	27.88	27.88	26.55	26.55	26.55
Maximum Torsional Backlash	$j_1$	arcmin	≤ 10							
Torsional Rigidity	$C_{121}$	Nm/arcmin	200	200	200	200	200	200	200	200
		in.lb/arcmin	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14
Maximum Radial Load	$F_{2AMax}$	N	14000							
		lb <sub>r</sub>	3147.20							
Maximum Axial Load	$F_{2OMax}$	N	7800							
		lb <sub>i</sub>	1753.44							
Max. Tilting Moment	$M_{2KMax}$	Nm	2350							
		in.lb	20799.15							
Mass Moment of Inertia	$j_1$	kgcm <sup>2</sup>	59.610	48.610	23.670	22.750	22.750	22.590	22.590	22.590
Operating Noise Level	$L_{PA}$	dB(A)	< 72							
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	$L_{h1}$	h	20,000(Continuous Operation)							
Weight	$m$	kg	67							
		lb <sub>m</sub>	147.71							

**SPLF235 3-stages**

			3-stages							
Ratio	$i$		80	100	125	160	200	256	320	512
Nominal Output Torque		Nm	1850	1850	1850	1850	1850	1850	1850	1350
		in.lb	16374	16374	16374	16374	16374	16374	16374	11948
Emergency Stop Torque	$T_{2Max}$	Nm	3700	3700	3700	3700	3700	3700	3700	2700
		in.lb	32748	32748	32748	32748	32748	32748	32748	23897
Maximum Acceleration Torque	$T_{2a}$	Nm	3330	3330	3330	3330	3330	3330	3330	2430
		in.lb	29473	29473	29473	29473	29473	29473	29473	21507
Maximum Torque	$T_{2a}$	Nm	3700	3700	3700	3700	3700	3700	3700	2700
		in.lb	32748	32748	32748	32748	32748	32748	32748	23897
Permitted Average Input Speed	$n_{1N}$	rpm	1500							
Maximum Input Speed	$n_{1Max}$	rpm	3000							
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	$j_t$	arcmin	$\leq 12$							
Torsional Rigidity	$C_{121}$	Nm/arcmin	200	200	200	200	200	200	200	200
		in.lb/arcmin	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14	1770.14
Maximum Radial Load	$F_{2Max}$	N	14000							
		lb <sub>f</sub>	3147.20							
Maximum Axial Load	$F_{20Max}$	N	7800							
		lb <sub>f</sub>	1753.44							
Max. Tilting Moment	$M_{20Max}$	Nm	2350							
		in.lb	20799.15							
Mass Moment of Inertia	$j_i$	kgcm <sup>2</sup>	22.750	22.590	22.750	22.750	2.750	22.750	22.750	22.590
Operating Noise Level	$L_{pA}$	dB(A)	< 72							
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	76							
		lb <sub>m</sub>	167.55							



Model	SPLF040			SPLF060			SPLF070			SPLF080			SPLF090			SPLF120			SPLF160			SPLF205			SPLF235		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	Φ45			Φ60			Φ70			Φ80			Φ89			Φ120			Φ175			Φ210			Φ240		
	Φ1.77			Φ2.36			Φ2.76			Φ3.15			Φ3.5			Φ4.72			Φ6.89			Φ8.27			Φ9.45		
K2	88.8	101.8	113.8	116.4	132	147.5	122	145.7	169.4	147	169	191	149	180.3	211.6	198.5	233.5	268.5	275.5	336.5	356	288	348	409	357.5	402	462
	3.5	4	4.48	4.58	5.2	5.81	4.8	5.74	6.67	5.79	6.65	7.52	5.87	7.1	8.33	7.81	9.19	10.6	10.9	13.3	14.02	11.34	13.7	16.1	14.07	15.83	18.19
K3	Φ10			Φ14			Φ14			Φ20			Φ20			Φ25			Φ40			Φ55			Φ75		
	Φ0.39			Φ0.55			Φ0.55			Φ0.79			Φ0.79			Φ0.98			Φ1.57			Φ2.17			Φ2.95		
K4	23			30			30			36			36			50			80			82			105		
	0.91			1.18			1.18			1.42			1.42			1.97			3.15			3.23			4.14		
K5	Φ12			Φ17			Φ17			Φ25			Φ25			Φ35			Φ50			Φ60			Φ85		
	Φ0.47			Φ0.67			Φ0.67			Φ0.98			Φ0.98			Φ1.38			Φ1.97			Φ2.36			Φ3.35		
K6	Φ26			Φ50			Φ50			Φ80			Φ80			Φ110			Φ130			Φ160			Φ180		
	Φ1.02			Φ1.97			Φ1.97			Φ3.15			Φ3.15			Φ4.33			Φ5.12			Φ6.30			Φ7.09		
K7	2			3			3			3			3			4			5			15			30		
	0.08			0.12			0.12			0.12			0.12			0.16			0.2			0.59			1.18		
K8	26			35			35			40			40			55			87			105			138		
	1.02			1.38			1.38			1.57			1.57			2.17			3.43			4.13			5.43		
K9	M3X9			M5X12			M5X12			M6X16			M6X16			M10X26			M12X25			M20X40			M20X40		
K10	Φ3.5			Φ5.5			Φ5.5			Φ6.5			Φ6.5			Φ8.5			Φ11			Φ13			Φ17		
	Φ0.14			Φ0.22			0.22			Φ0.26			Φ0.26			Φ0.33			Φ0.43			Φ0.51			Φ0.67		
K11	Φ50			Φ85			Φ85			Φ100			Φ100			Φ130			Φ185			Φ230			Φ275		
	Φ1.97			Φ3.35			Φ3.35			Φ3.94			Φ3.94			Φ5.12			Φ7.28			Φ9.06			Φ10.83		
K12	16			22			22			28			28			40			70			70			90		
	0.63			0.87			0.87			1.1			1.1			1.57			2.76			2.76			3.54		
K13	3			5			5			6			6			8			12			16			20		
	0.12			0.2			0.2			0.24			0.24			0.31			0.47			0.63			0.79		
K14	11.2			16			16			22.5			22.5			28			43			59			79.5		
	0.44			0.63			0.63			0.89			0.89			1.1			1.69			2.32			3.13		
K15	6			8			8			10			10			14			15			18			18		
	0.24			0.31			0.31			0.39			0.39			0.55			0.59			0.71			0.71		
C1	Φ46			Φ70			Φ70			Φ90			Φ90			Φ145			Φ200	Φ145	Φ215	Φ200	Φ235	Φ215	Φ200		
	Φ1.81			Φ2.76			Φ2.76			Φ3.54			Φ3.54			Φ5.71			Φ7.87	Φ5.71	Φ8.46	Φ7.87	Φ9.25	Φ8.46	Φ7.87		
C2	M4X10			M5X12			M5X12			M6X15			M6X15			M8X20			M12X25	M8X20	M12X25	M12X25	M12X25	M12X25	M12X25	M12X25	
C3	Φ8			Φ14			Φ14			Φ19			Φ19			Φ24			Φ35	Φ24	Φ42	Φ35	Φ55	Φ42	Φ35		
	Φ0.31			Φ0.55			Φ0.55			Φ0.75			Φ0.75			Φ0.94			Φ1.38	Φ0.94	Φ1.65	Φ1.38	Φ2.17	Φ1.65	Φ1.38		
C4	26.1			31.5			32.1			41.6			41.6			56.5			82	61.3	82.5	82	115.5	82.5	82		
	1.03			1.24			1.26			1.64			1.64			2.22			3.23	2.41	3.25	3.23	4.55	3.25	3.23		
C5	Φ30			Φ50			Φ50			Φ70			Φ70			Φ110			Φ114.3	Φ110	Φ180	Φ114.3	Φ200	Φ180	Φ114.3		
	Φ1.18			Φ1.97			Φ1.97			Φ2.76			Φ2.76			Φ4.33			Φ4.5	Φ4.33	Φ7.09	Φ4.5	Φ7.87	Φ7.09	Φ4.5		
C6	6			6.5			6.5			6.5			6.5			8			8	8	8	8	8	8	8	8	
	0.24			0.26			0.26			0.26			0.26			0.31			0.31	0.31	0.31	0.31	0.31	0.31	0.31		
C7	45			60			70			80			89			120			175	120	190	175	220	190	175		
	1.77			2.36			2.76			3.15			3.5			4.72			6.89	4.72	7.48	6.89	8.66	7.48	6.89		

## Technical Memo

