

Gear Ratio Information

Recommended ratios for 16D can motor on medium sized track shown in light blue (using .760 tire)

Recommended ratios for C can motors on medium sized track shown in tan boxes (using .760 tire)

Recommended ratios for Falcon motors on medium sized track shown in pink boxes (using .710 tire)

	6	7	8	9	10	11	12	13		<- pinion gear
27		3.857	3.375	3.000	2.700	2.455			27	
28		4.000	3.500	3.111	2.800	2.800			28	
29		4.143	3.625	3.222	2.900	2.636			29	48 pitch gears
30		4.286	3.750	3.333	3.000	2.727			30	
31		4.429	3.875	3.444	3.100	2.818			31	
32		4.571	4.000	3.556	3.200	2.909			32	
33		4.714	4.125	3.667	3.300	3.000			33	
34		4.857	4.250	3.778	3.400	3.091			34	
35	5.833	5.000	4.375	3.889	3.500	3.182	2.917	2.692	35	
36	6.000	5.143	4.500	4.000	3.600	3.273	3.000	2.769	36	
37	6.167	5.286	4.625	4.111	3.700	3.364	3.083	2.846	37	64 pitch gears
38	6.333	5.429	4.750	4.222	3.800	3.455	3.167	2.923	38	
39	6.500	5.571	4.875	4.333	3.900	3.545	3.250	3.000	39	
40	6.667	5.714	5.000	4.444	4.000	3.636	3.333	3.077	40	
41		5.857	5.125	4.556	4.100	3.727	3.417	3.154	41	
42		6.000	5.250	4.667	4.200	3.818	3.500	3.231	42	72 pitch gears
43		6.143	5.375	4.778	4.300	3.909	3.583	3.308	43	
44		6.286	5.500	4.889	4.400	4.000	3.667	3.385	44	
45		6.429	5.625	5.000	4.500	4.091	3.750	3.462	45	
46		6.571	5.750	5.111	4.600	4.182	3.833	3.538	46	
47		6.714	5.875	5.222	4.700	4.273	3.917	3.615	47	80 pitch gears
48		6.857	6.000	5.333	4.800	4.364	4.000	3.692	48	
49		7.000	6.125							

Commonly used drive ratios with 64 pitch gears w/tires

7 tooth pinion	35	36	37	38	39
<b>0.670</b>	7.463	7.676	7.889	8.102	8.316
<b>0.680</b>	7.353	7.563	7.773	7.983	8.193
<b>0.690</b>	7.246	7.453	7.660	7.867	8.075
<b>0.700</b>	7.143	7.347	7.551	7.755	7.959
<b>0.710</b>	7.042	7.243	7.445	7.646	7.847
<b>0.720</b>	6.944	7.143	7.341	7.540	7.738
<b>0.730</b>	6.849	7.045	7.241	7.436	7.632
<b>0.740</b>	6.757	6.950	7.143	7.336	7.529
<b>0.750</b>	6.667	6.857	7.048	7.238	7.429
<b>0.760</b>	6.579	6.767	6.955	7.143	7.331
<b>0.770</b>	6.494	6.679	6.865	7.050	7.236
8 tooth pinion	35	36	37	38	39
<b>0.670</b>	6.530	6.716	6.903	7.090	7.276
<b>0.680</b>	6.434	6.618	6.801	6.985	7.169
<b>0.690</b>	6.341	6.522	6.703	6.884	7.065
<b>0.700</b>	6.250	6.429	6.607	6.786	6.964
<b>0.710</b>	6.162	6.338	6.514	6.690	6.866
<b>0.720</b>	6.076	6.250	6.424	6.597	6.771
<b>0.730</b>	5.993	6.164	6.336	6.507	6.678
<b>0.740</b>	5.912	6.081	6.250	6.419	6.588
<b>0.750</b>	5.833	6.000	6.167	6.333	6.500
<b>0.760</b>	5.757	5.921	6.086	6.250	6.414
<b>0.770</b>	5.682	5.844	6.006	6.169	6.331

9 tooth pinion	35	36	37	38	39
<b>0.670</b>	5.804	5.970	6.136	6.302	6.468
<b>0.680</b>	5.719	5.882	6.046	6.209	6.373
<b>0.690</b>	5.636	5.797	5.958	6.119	6.280
<b>0.700</b>	5.556	5.714	5.873	6.032	6.190
<b>0.710</b>	5.477	5.634	5.790	5.947	6.103
<b>0.720</b>	5.401	5.556	5.710	5.864	6.019
<b>0.730</b>	5.327	5.479	5.632	5.784	5.936
<b>0.740</b>	5.255	5.405	5.556	5.706	5.856
<b>0.750</b>	5.185	5.333	5.481	5.630	5.778
<b>0.760</b>	5.117	5.263	5.409	5.556	5.702
<b>0.770</b>	5.051	5.195	5.339	5.483	5.628

10 tooth pinion	35	36	37	38	39
<b>0.670</b>	5.224	5.373	5.522	5.672	5.821
<b>0.680</b>	5.147	5.294	5.441	5.588	5.735
<b>0.690</b>	5.072	5.217	5.362	5.507	5.652
<b>0.700</b>	5.000	5.143	5.286	5.429	5.571
<b>0.710</b>	4.930	5.070	5.211	5.352	5.493
<b>0.720</b>	4.861	5.000	5.139	5.278	5.417
<b>0.730</b>	4.795	4.932	5.068	5.205	5.342
<b>0.740</b>	4.730	4.865	5.000	5.135	5.270
<b>0.750</b>	4.667	4.800	4.933	5.067	5.200
<b>0.760</b>	4.605	4.737	4.868	5.000	5.132
<b>0.770</b>	4.545	4.675	4.805	4.935	5.065

11 tooth pinion	35	36	37	38	39
<b>0.670</b>	4.749	4.885	5.020	5.156	5.292
<b>0.680</b>	4.679	4.813	4.947	5.080	5.214
<b>0.690</b>	4.611	4.743	4.875	5.007	5.138
<b>0.700</b>	4.545	4.675	4.805	4.935	5.065
<b>0.710</b>	4.481	4.609	4.738	4.866	4.994
<b>0.720</b>	4.419	4.545	4.672	4.798	4.924
<b>0.730</b>	4.359	4.483	4.608	4.732	4.857
<b>0.740</b>	4.300	4.423	4.545	4.668	4.791
<b>0.750</b>	4.242	4.364	4.485	4.606	4.727
<b>0.760</b>	4.187	4.306	4.426	4.545	4.665
<b>0.770</b>	4.132	4.250	4.368	4.486	4.604

# GEAR RATIOS

Professor Motor is proud to offer the following technical information for chassis tuning. Lower gear ratios (higher ratio numbers) give your car faster acceleration out of a corner, higher gear ratios (lower ratio numbers) gives your car faster top speed. The final selection of a gear ratio is dependent on many factors and is by nature a compromise in trying to achieve the best possible performance. The ratio chart is sorted in decreasing order of the resultant ratios.

**Application Note : Not all of these ratios may be suitable for every application since tire size and the resulting ground clearance will limit the possible combinations of gears that can be used.**



Professor Motor Sidewinder (Spur) Axle Gear / Gear Size	Professor Motor Pinion Gear / Gear Size	Gear Ratio
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<b>for Fly, GB Track, TSRF, Scalextric &amp; Slot.it HRS I Chassis Applications</b>		
PMTR1106 / 47 tooth spur gear (sidewinder)	PMTR1080 / 12 tooth pinion gear (sidewinder)	3.92 : 1
PMTR1089 / 46 tooth spur gear (sidewinder)	PMTR1103 / 13 tooth pinion gear (sidewinder)	3.54 : 1
PMTR1088 / 45 tooth spur gear (sidewinder)	PMTR1104 / 14 tooth pinion gear (sidewinder)	3.21 : 1
PMTR1087 / 44 tooth spur gear (sidewinder)	PMTR1105 / 15 tooth pinion gear (sidewinder)	2.93 : 1



<b>Professor Motor Sidewinder (Spur) Axle Gear / Gear Size for Pro Slot &amp; Slot.it HRS II Chassis Applications</b>	<b>Professor Motor Pinion Gear / Gear Size</b>	<b>Gear Ratio</b>
PMTR1106 / 47 tooth spur gear (sidewinder)	PMTR1078 / 10 tooth pinion gear (sidewinder)	4.70 : 1
PMTR1089 / 46 tooth spur gear (sidewinder)	PMTR1079 / 11 tooth pinion gear (sidewinder)	4.18 : 1
PMTR1088 / 45 tooth spur gear (sidewinder)	PMTR1080 / 12 tooth pinion gear (sidewinder)	3.75 : 1
PMTR1087 / 44 tooth spur gear (sidewinder)	PMTR1103 / 13 tooth pinion gear (sidewinder)	3.38 : 1



<b>Slot.it Inline (Crown) Axle Gear / Gear Size</b>	<b>Slot.it or Professor Motor Pinion Gear / Gear Size</b>	<b>Gear Ratio</b>
SIGI30AL /SIGI30BZ /SIGO30BZ / 30 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	3.75 : 1
SIGI29AL /SIGI29BZ /SIGO29BZ / 29 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	3.63 : 1
SIGI28AL /SIGI28BZ /SIGO28BZ / 28 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	3.50 : 1
SIGI27AL /SIGI27BZ /SIGO27BZ / 27 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	3.38 : 1
SIGI30AL /SIGI30BZ /SIGO30BZ / 30 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	3.33 : 1
SIGI26AL /SIGI26BZ /SIGO26BZ / 26 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	3.25 : 1
SIGI29AL /SIGI29BZ /SIGO29BZ / 29 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	3.22 : 1

SIGI25AL /SIGI25BZ /SIGO25BZ / 25 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	3.13 : 1
SIGI28AL /SIGI28BZ /SIGO28BZ / 28 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	3.11 : 1
SIGI30AL /SIGI30BZ /SIGO30BZ / 30 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	3.00 : 1
SIGI27AL /SIGI27BZ /SIGO27BZ / 27 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	3.00 : 1
SIGI24AL /SIGI24BZ /SIGO24BZ / 24 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	3.00 : 1
SIGI29AL /SIGI29BZ /SIGO29BZ / 29 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	2.90 : 1
SIGI26AL /SIGI26BZ /SIGO26BZ / 26 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	2.89 : 1
SIGI23AL /SIGI23BZ /SIGO23BZ / 23 tooth crown gear (inline)	SIPI08 / 8 tooth pinion gear (inline)	2.88 : 1
SIGI28AL /SIGI28BZ /SIGO28BZ / 28 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	2.80 : 1
SIGI25AL /SIGI25BZ /SIGO25BZ / 25 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	2.78 : 1
SIGI30AL /SIGI30BZ /SIGO30BZ / 30 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.73 : 1
SIGI27AL /SIGI27BZ /SIGO27BZ / 27 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	2.70 : 1
SIGI24AL /SIGI24BZ /SIGO24BZ / 24 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	2.67 : 1
SIGI29AL /SIGI29BZ /SIGO29BZ / 29 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.64 : 1
SIGI26AL /SIGI26BZ /SIGO26BZ / 26 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	2.60 : 1
SIGI23AL /SIGI23BZ /SIGO23BZ / 23 tooth crown gear (inline)	PMTR1066 or SIPI09 / 9 tooth pinion gear (inline)	2.56 : 1
SIGI28AL /SIGI28BZ /SIGO28BZ / 28 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.55 : 1
SIGI25AL /SIGI25BZ /SIGO25BZ / 25 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	2.50 : 1
SIGI27AL /SIGI27BZ /SIGO27BZ / 27 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.45 : 1
SIGI24AL /SIGI24BZ /SIGO24BZ / 24 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	2.40 : 1
SIGI26AL /SIGI26BZ /SIGO26BZ / 26 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.36 : 1
SIGI23AL /SIGI23BZ /SIGO23BZ / 23 tooth crown gear (inline)	SIPI10 / 10 tooth pinion gear (inline)	2.30 : 1
SIGI25AL /SIGI25BZ /SIGO25BZ / 25 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.27 : 1
SIGI24AL /SIGI24BZ /SIGO24BZ / 24 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.18 : 1
SIGI23AL /SIGI23BZ /SIGO23BZ / 23 tooth crown gear (inline)	SIPI11 / 11 tooth pinion gear (inline)	2.09 : 1



<b>Slot.it Sidewinder (Spur) Axle Gear / Gear Size for Fly, GB Track, Scalextric &amp; Slot.it HRS I Chassis Applications</b>	<b>Slot.it or Professor Motor Pinion Gear / Gear Size</b>	<b>Gear Ratio</b>
SIGS03 / 38 tooth spur gear (sidewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.80 : 1
SIGS02 / 36 tooth spur gear (sidewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.60 : 1
SIGS03 / 38 tooth spur gear (sidewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	3.45 : 1
SIGS01 / 34 tooth spur gear (sidewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.40 : 1
SIGS02 / 36 tooth spur gear (sidewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	3.27 : 1
SIGS03 / 38 tooth spur gear (sidewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	3.17 : 1
SIGS01 / 34 tooth spur gear (sidewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	3.09 : 1
SIGS02 / 36 tooth spur gear (sidewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	3.00 : 1
SIGS03 / 38 tooth spur gear (sidewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.92 : 1
SIGS01 / 34 tooth spur gear (sidewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	2.83 : 1
SIGS02 / 36 tooth spur gear (sidewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.77 : 1
SIGS01 / 34 tooth spur gear (sidewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.62 : 1



<b>Slot.it Sidewinder (Spur) Axle Gear / Gear Size for Pro Slot &amp; Slot.it HRS II Chassis Applications</b>	<b>Slot.it or Professor Motor Pinion Gear / Gear Size</b>	<b>Gear Ratio</b>
SIGS06 / 36 tooth spur gear (sidewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.60 : 1
SIGS05 / 34 tooth spur gear (sidewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.40 : 1
SIGS06 / 36 tooth spur gear (sidewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	3.27 : 1
SIGS04 / 32 tooth spur gear (sidewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.20 : 1
SIGS05 / 34 tooth spur gear (sidewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	3.09 : 1
SIGS06 / 36 tooth spur gear (sidewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	3.00 : 1

SIGS04 / 32 tooth spur gear (sidewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	2.91 : 1
SIGS04 / 32 tooth spur gear (sidewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.46 : 1
SIGS05 / 34 tooth spur gear (sidewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	2.83 : 1
SIGS06 / 36 tooth spur gear (sidewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.77 : 1
SIGS04 / 32 tooth spur gear (sidewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	2.67 : 1
SIGS05 / 34 tooth spur gear (sidewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.62 : 1



Slot.it <b>ANGLEWINDER</b> Axle Gear / Gear Size for Pro Slot & Slot.it HRS II Chassis Applications	Slot.it or Professor Motor Pinion Gear / Gear Size	Gear Ratio
SIGA36 / 36 tooth spur gear (anglewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.60 : 1
SIGA34 / 34 tooth spur gear (anglewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.40 : 1
SIGA36 / 36 tooth spur gear (anglewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	3.27 : 1
SIGA32 / 32 tooth spur gear (anglewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.20 : 1
SIGA34 / 34 tooth spur gear (anglewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	3.09 : 1
SIGA36 / 36 tooth spur gear (anglewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	3.00 : 1
SIGA30 / 30 tooth spur gear (anglewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	3.00 : 1
SIGA32 / 32 tooth spur gear (anglewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	2.91 : 1
SIGA34 / 34 tooth spur gear (anglewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	2.83 : 1
SIGA28 / 28 tooth spur gear (anglewinder)	SIPS10 / 10 tooth pinion gear (sidewinder)	2.80 : 1
SIGA36 / 36 tooth spur gear (anglewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.77 : 1
SIGA30 / 30 tooth spur gear (anglewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	2.73 : 1
SIGA32 / 32 tooth spur gear (anglewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	2.67 : 1
SIGA34 / 34 tooth spur gear (anglewinder)	SIPS13 / 13 tooth pinion gear (sidewinder)	2.62 : 1
SIGA28 / 28 tooth spur gear (anglewinder)	PMTR1068 or SIPS11 / 11 tooth pinion gear (sidewinder)	2.55 : 1
SIGA30 / 30 tooth spur gear (anglewinder)	SIPS12 / 12 tooth pinion gear (sidewinder)	2.50 : 1



	<b>SW</b>									
<b>SIPS12</b>	<b>12 SW</b>						<b>2.66-1</b>	<b>2.83-1</b>	<b>3.00-1</b>	<b>3.16-1</b>
<b>SIPS13</b>	<b>13 SW</b>						<b>2.46-1</b>	<b>2.61-1</b>	<b>2.77-1</b>	<b>2.92-1</b>

**LOW GEAR RATIOS = MORE TOP SPEED / LESS ACCELERATION -  
Speed circuits**

**HIGH GEAR RATIOS = LESS TOP SPEED / GREATER  
ACCELERATION/MORE BRAKES-rally circuits**