

Gearhead reduction ratios

Technical Information

Reduction ratio

The ratios listed on the data sheets are rounded nominal values only. The exact ratio for each reduction gearhead can be calculated by means of the applicable stage ratio.

Absolute reduction

The reduction as an exact ratio of two integral numbers. This allows the calculation to the full decimals.

Calculated reduction

The calculated reduction ratio is shown with maximum six decimals.



Gearhead reduction ratios

Planetary Gearheads 02/1

Nominal reduction	Calculated reduction	Absolute reduction
13 :1	12,960000	324 / 25
47 :1	46,656000	5 832 / 125

Planetary Gearheads 06/1

Nominal reduction	Calculated reduction	Absolute reduction
4 :1	4,00	4 / 1
16 :1	16,00	16 / 1
64 :1	64,00	64 / 1
256 :1	256,00	256 / 1
1 024 :1	1 024,00	1 024 / 1
4 096 :1	4 096,00	4 096 / 1

Planetary Gearheads 08/1

Nominal reduction	Calculated reduction	Absolute reduction
4 :1	4,00	4 / 1
16 :1	16,00	16 / 1
64 :1	64,00	64 / 1
256 :1	256,00	256 / 1
1 024 :1	1 024,00	1 024 / 1
4 096 :1	4 096,00	4 096 / 1

Spur Gearheads 08/2

Nominal reduction	Calculated reduction	Absolute reduction
4 :1	4,030303	133 / 33
9,4 :1	9,404040	931 / 99
21,9 :1	21,942760	6 517 / 297
51,2 :1	51,199775	45 619 / 891
120 :1	119,466142	319 333 / 2 673
279 :1	278,754333	2 235 331 / 8 019
650 :1	650,426778	15 647 317 / 24 057
1 518 :1	1 517,662482	109 531 219 / 72 171

Spur Gearheads 08/3

Nominal reduction	Calculated reduction	Absolute reduction
120 :1	119,466142	319 333 / 2 673
279 :1	278,754333	2 235 331 / 8 019
650 :1	650,426778	15 647 317 / 24 057
1 518 :1	1 517,662482	109 531 219 / 72 171

Planetary Gearheads 10/1

Nominal reduction	Calculated reduction	Absolute reduction
4 :1	4,00	4 / 1
16 :1	16,00	16 / 1
64 :1	64,00	64 / 1
256 :1	256,00	256 / 1
1 024 :1	1 024,00	1 024 / 1
4 096 :1	4 096,00	4 096 / 1

Gearhead reduction ratios

Spur Gearheads 12/3

Nominal reduction	Calculated reduction	Absolute reduction
9,17 :1	9,166666	55 / 6
20,6 :1	20,625000	165 / 8
46,4 :1	46,406250	1 485 / 32
104,4 :1	104,414062	13 365 / 128
235 :1	234,931640	120 285 / 512
529 :1	528,596191	1 082 565 / 2 048
1 190 :1	1 189,341430	9 743 085 / 8 192
2 677 :1	2 676,018218	87 687 765 / 32 768
6 023 :1	6 021,040992	789 189 885 / 131 072
13 552 :1	13 547,342233	7 102 708 965 / 524 288
30 492 :1	30 481,520025	63 924 380 685 / 2 097 152
68 608 :1	68 583,420057	575 319 426 165 / 8 388 608
154 368 :1	154 312,695130	5 177 874 835 485 / 33 554 432

Planetary Gearheads 12/4

Nominal reduction	Calculated reduction	Absolute reduction
4 :1	4,00	4 / 1
16 :1	16,00	16 / 1
64 :1	64,00	64 / 1
256 :1	256,00	256 / 1
1 024 :1	1 024,00	1 024 / 1

Spur Gearheads 12/5

Nominal reduction	Calculated reduction	Absolute reduction
69,2 :1	69,164609	16 807 / 243
161 :1	161,384087	117 649 / 729
377 :1	376,562871	823 543 / 2 187
879 :1	878,646700	5 764 801 / 6 561
2 050 :1	2 050,175633	40 353 607 / 19 683

Planetary Gearheads 13A

Nominal reduction	Calculated reduction	Absolute reduction
16 :1	16,000000	16 / 1
50 :1	50,285714	352 / 7
64 :1	64,000000	64 / 1
158 :1	158,040816	7744 / 49
201 :1	201,142857	1408 / 7
256 :1	256,000000	256 / 1
497 :1	496,699708	170 368 / 343
632 :1	632,163265	30 976 / 49
805 :1	804,571428	5 632 / 7
1 024 :1	1 024,000000	1 024 / 1

Planetary Gearheads 14/1

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
14 :1	13,795918	676 / 49
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125
2 608 :1	2 625,740771	308 915 776 / 117 649
4 365 :1	4 385,142457	263 218 176 / 60 025
5 647 :1	5 666,953329	242 970 624 / 42 875

Gearhead reduction ratios

Planetary Gearheads 15A

Nominal reduction	Calculated reduction	Absolute reduction
5,33:1	5,333333	16 / 3
14 :1	14,400000	72 / 5
19 :1	19,200000	96 / 5
28 :1	28,444444	256 / 9
52 :1	51,840000	1 296 / 25
69 :1	69,120000	1 728 / 25
102 :1	102,400000	512 / 5
152 :1	151,703703	4 096 / 27
249 :1	248,832000	31 104 / 125
369 :1	368,640000	9 216 / 25
546 :1	546,133333	8 192 / 15
809 :1	809,086419	65 536 / 81
896 :1	895,795200	559 872 / 625
1 327 :1	1 327,104000	165 888 / 125
1 966 :1	1 966,080000	49 152 / 25
2 913 :1	2 912,711111	131 072 / 45
3 225 :1	3 224,862720	2 560 541 / 794
4 315 :1	4 315,127572	1 048 576 / 243
4 778 :1	4 777,574400	2 985 984 / 625
7 078 :1	7 077,888000	884 736 / 125
10 486 :1	10 485,760000	262 144 / 25
15 534 :1	15 534,459259	2 097 152 / 135

Spur Gearheads 15/3, 16/3

Nominal reduction	Calculated reduction	Absolute reduction
6,3 :1	6,396825	403 / 63
11,8 :1	11,864197	961 / 81
22 :1	22,033509	12 493 / 567
41 :1	40,865569	29 791 / 729
76 :1	75,893200	387 283 / 5 103
141 :1	140,759183	923 521 / 6 561
262 :1	261,409911	12 005 773 / 45 927
485 :1	484,837186	28 629 151 / 59 049
900 :1	900,411916	372 178 963 / 413 343
1 670 :1	1 669,994752	887 503 681 / 531 441
3 101 :1	3 101,418825	11 537 547 853 / 3 720 087
5 752 :1	5 752,204145	27 512 614 111 / 4 782 969
10 683 :1	10 682,664842	119 221 327 814 / 11 160 261
19 813 :1	19 813,147613	852 891 037 441 / 43 046 721
36 796 :1	36 795,845567	11 087 583 486 733 / 301 327 047
68 245 :1	68 245,286223	26 439 622 160 671 / 387 420 489
126 741 :1	126 741,245843	343 715 088 088 723 / 2 711 943 423
235 067 :1	235 067,096992	819 628 286 980 801 / 3 486 784 401

Hybrid Gearheads 15/4

Nominal reduction	Calculated reduction	Absolute reduction
12,3 :1	12,270833	5 301 / 432
22,8 :1	22,788690	68 913 / 3 024
42,3 :1	42,321853	895 869 / 21 168
78,5 :1	78,494378	2 136 303 / 27 216
146 :1	145,775273	27 771 939 / 190 512
270 :1	270,369525	66 225 393 / 244 944
502 :1	502,114832	860 930 109 / 1 714 608
931 :1	931,272809	2 052 987 183 / 2 204 496
1 730 :1	1 729,506645	26 688 833 379 / 15 431 472
3 208 :1	3 207,717454	63 642 602 673 / 19 840 464

Gearhead reduction ratios

Spur Gearheads 15/5, 16/5

Nominal reduction	Calculated reduction	Absolute reduction
6,3 :1	6,396825	403 / 63
11,8 :1	11,864197	961 / 81
22 :1	22,033509	12 493 / 567
41 :1	40,865569	29 791 / 729
76 :1	75,893200	387 283 / 5 103
141 :1	140,759183	923 521 / 6 561
262 :1	261,409911	12 005 773 / 45 927
485 :1	484,837186	28 629 151 / 59 049
900 :1	900,411916	372 178 963 / 413 343
1 670 :1	1 669,994752	887 503 681 / 531 441
3 101 :1	3 101,418825	11 537 547 853 / 3 720 087
5 752 :1	5 752,204145	27 512 614 111 / 4 782 969
10 683 :1	10 682,664842	119 221 327 814 / 11 160 261
19 813 :1	19 813,147613	852 891 037 441 / 43 046 721
36 796 :1	36 795,845567	11 087 583 486 733 / 301 327 047
68 245 :1	68 245,286223	26 439 622 160 671 / 387 420 489
126 741 :1	126 741,245843	343 715 088 088 723 / 2 711 943 423
235 067 :1	235 067,096992	819 628 286 980 801 / 3 486 784 401

Spur Gearheads 15/8, 16/8

Nominal reduction	Calculated reduction	Absolute reduction
22 :1	22,033509	12 493 / 567
41 :1	40,865569	29 791 / 729
76 :1	75,893200	387 283 / 5 103
141 :1	140,759183	923 521 / 6 561
262 :1	261,409911	12 005 773 / 45 927
485 :1	484,837186	28 629 151 / 59 049
900 :1	900,411916	372 178 963 / 413 343
1 670 :1	1 669,994752	887 503 681 / 531 441

Spur Gearheads 16A

Nominal reduction	Calculated reduction	Absolute reduction
11,9 :1	11,864197	961 / 81
22 :1	22,033509	12 493 / 567
41 :1	40,865569	29 791 / 729
76 :1	75,893203	7 817 / 103
141 :1	140,759183	34 486 / 245
262 :1	261,409909	58 033 / 222
485 :1	484,837185	482 413 / 995
900 :1	900,411917	347 559 / 386
1 670 :1	1 669,994750	636 268 / 381
3 101 :1	3 101,418823	1 318 103 / 425
5 752 :1	5 752,204146	3 606 632 / 627

Planetary Gearheads 16/7

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
14 :1	13,795918	676 / 49
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125
2 608 :1	2 625,740771	308 915 776 / 117 649
4 365 :1	4 385,142457	263 218 176 / 60 025
5 647 :1	5 666,953329	242 970 624 / 42 875

Gearhead reduction ratios

Planetary Gearheads 20/1

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
9,7 :1	9,679012	784 / 81
14 :1	13,795918	676 / 49
23 :1	23,040000	576 / 25
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
86 :1	85,577142	14 976 / 175
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125

Planetary Gearheads 22E

Nominal reduction	Calculated reduction	Absolute reduction
14 :1	14,400000	72 / 5
19 :1	19,200000	96 / 5
28 :1	28,444444	256 / 9
52 :1	51,840000	1 296 / 25
69 :1	69,120000	1 728 / 25
102 :1	102,400000	512 / 5
152 :1	151,703703	4 096 / 27
249 :1	248,832000	31 104 / 125
369 :1	368,640000	9 216 / 25
546 :1	546,133333	8 192 / 15
809 :1	809,086419	65 536 / 81
896 :1	895,795200	559 872 / 625
1 327 :1	1 327,104000	165 888 / 125
1 966 :1	1 966,080000	49 152 / 25
2 913 :1	2 912,711111	131 072 / 45
3 225 :1	3 224,862720	2 560 541 / 794
4 315 :1	4 315,127572	1 048 576 / 243
4 778 :1	4 777,574400	2 985 984 / 625
7 078 :1	7 077,888000	884 736 / 125
10 486 :1	10 485,760000	262 144 / 25
15 534 :1	15 534,459259	2 097 152 / 135
23 014 :1	23 014,013717	16 777 216 / 729

Planetary Gearheads 22F

Nominal reduction	Calculated reduction	Absolute reduction
4 :1	3,705882	63 / 17
14 :1	13,733564	3969 / 289
16 :1	15,882352	270 / 17
19 :1	81,613636	3591 / 44
25 :1	25,014705	1701 / 68
51 :1	50,894972	250047 / 4913
59 :1	58,858131	17010 / 289
68 :1	68,067226	8100 / 119
71 :1	71,161686	226223 / 3179
93 :1	92,701557	107163 / 1156
100 :1	99,507535	204687 / 2057
107 :1	107,205882	3645 / 34
130 :1	114,471074	96957 / 847
169 :1	168,849264	45927 / 272
189 :1	188,610778	31498 / 167
218 :1	218,121311	66527 / 305
252 :1	252,249134	72900 / 289
264 :1	263,728494	98107 / 372
292 :1	291,716686	243000 / 833
305 :1	304,992136	232709 / 763
344 :1	343,541062	71113 / 207

Gearhead reduction ratios

Planetary Gearheads 22/2

Nominal reduction	Calculated reduction	Absolute reduction
3,1 :1	3,062500	49 / 16
5,4 :1	5,444444	49 / 9
9,7 :1	9,697916	931 / 96
17,2 :1	17,240740	931 / 54
30,7 :1	30,710069	17 689 / 576
54,6 :1	54,595679	17 689 / 324
97,3 :1	97,248553	336 091 / 3 456
173 :1	172,886316	336 091 / 1 944
308 :1	307,953751	6 385 729 / 20 736
548 :1	547,473336	6 385 729 / 11 664
975 :1	975,186881	121 328 851 / 124 416
1734 :1	1 733,665566	121 328 851 / 69 984
3 088 :1	3 088,091790	2 305 248 169 / 746 496
5 490 :1	5 489,940960	2 305 248 169 / 419 904
9 780 :1	9 778,957335	43 799 715 211 / 4 478 976
17 386 :1	17 384,813040	43 799 715 211 / 2 519 424
30 969 :1	30 966,698229	832 194 589 009 / 26 873 856
55 057 :1	55 051,907963	832 194 589 009 / 15 116 544
98 070 :1	98 061,211059	15 811 697 191 171 / 161 243 136
174 350 :1	174 331,041883	15 811 697 191 171 / 90 699 264
310 560 :1	310 527,168354	300 422 246 632 249 / 967 458 816
552 113 :1	552 048,299297	300 422 246 632 249 / 544 195 584
983 447 :1	983 336,033123	5 708 022 686 012 731 / 5 804 752 896

Spur Gearheads 22/5

Nominal reduction	Calculated reduction	Absolute reduction
69,2 :1	69,164609	16 807 / 243
161 :1	161,384087	117 649 / 729
377 :1	376,562871	823 543 / 2 187
879 :1	878,646700	5 764 801 / 6 561
2 050 :1	2 050,175633	40 353 607 / 19 683

Hybrid Gearheads 22/6

Nominal reduction	Calculated reduction	Absolute reduction
14,6 :1	14,583333	525 / 36
20,4 :1	20,416666	735 / 36
34 :1	34,027777	3 675 / 108
47,6 :1	47,638888	5 145 / 108
79,4 :1	79,398148	25 752 / 324
111 :1	111,157407	36 015 / 324
185 :1	185,262345	180 075 / 972
259 :1	259,367283	252 105 / 972
432 :1	432,278806	1 260 525 / 2 916
605 :1	605,190329	1 764 735 / 2 916
1 009 :1	1 008,650548	8 823 675 / 8 748
1 412 :1	1 412,110768	12 353 145 / 8 748
2 354 :1	2 353,517946	61 765 725 / 26 244
3 295 :1	3 294,925125	86 472 015 / 26 244

Planetary Gearheads 22/7

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
14 :1	13,795918	676 / 49
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125

Gearhead reduction ratios

Planetary Gearheads 23/1

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
14 :1	13,795918	676 / 49
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125

Planetary Gearheads 26A

Nominal reduction	Calculated reduction	Absolute reduction
13 :1	12,571428	88 / 7
16 :1	16,000000	16 / 1
40 :1	39,510204	1 936 / 49
50 :1	50,285714	352 / 7
64 :1	64,000000	64 / 1
124 :1	124,174927	42 592 / 343
158 :1	158,040816	7 744 / 49
201 :1	201,142857	1 408 / 7
256 :1	256,000000	256 / 1

Planetary Gearheads 26/1

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
9,7 :1	9,679012	784 / 81
14 :1	13,795918	676 / 49
23 :1	23,040000	576 / 25
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
86 :1	85,577142	14 976 / 175
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125

Planetary Gearheads 30/1

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
9,7 :1	9,679012	784 / 81
14 :1	13,795918	676 / 49
23 :1	23,040000	576 / 25
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
86 :1	85,577142	14 976 / 175
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125

Gearhead reduction ratios

Planetary Gearheads 32/3

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
14 :1	13,795918	676 / 49
23 :1	23,040000	576 / 25
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
86 :1	85,577142	14 976 / 175
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125

Planetary Gearheads 38/1, 38/2

Nominal reduction	Calculated reduction	Absolute reduction
3,71 :1	3,714285	26 / 7
14 :1	13,795918	676 / 49
43 :1	42,920634	2 704 / 63
66 :1	66,220408	16 224 / 245
134 :1	133,530864	529 984 / 3 969
159 :1	159,419501	70 304 / 441
246 :1	245,961516	421 824 / 1 715
415 :1	415,429355	302 848 / 729
592 :1	592,129575	1 827 904 / 3 087
989 :1	988,891428	173 056 / 175
1 526 :1	1 525,718204	9 345 024 / 6 125

Spur Gearheads 38/3

Nominal reduction	Calculated reduction	Absolute reduction
5,42 :1	5,423076	141 / 26
10,3 :1	10,329670	940 / 91
18,2 :1	18,206043	6 627 / 364
34,7 :1	34,678178	22 090 / 637
61,1 :1	61,120290	311 469 / 5 096
116 :1	116,419600	519 115 / 4 459
205 :1	205,189546	14 639 043 / 71 344
391 :1	390,837231	48 796 810 / 124 852
586 :1	586,255846	292 780 860 / 499 408
689 :1	688,850620	688 035 021 / 998 816
1 034 :1	1 033,275930	14 448 735 441 / 13 983 424

Planetary Gearheads 44/1

Nominal reduction	Calculated reduction	Absolute reduction
4,8 :1	4,800000	24 / 5
23 :1	23,040000	576 / 25
111 :1	110,592000	13 824 / 125
531 :1	530,841600	331 776 / 625
2 548 :1	2 548,039680	7 962 624 / 3 125