**PRESSURE ANGLE 14.5 DEGREES**

**CONTACT RATIO FOR PROFILE SHIFT 0%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.542 1.507 1.482 1.462 1.445 1.430 1.393 1.359 1.328 1.278 1.215 1.142

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.000 8.000 10.000 12.000 14.000 16.000 22.000 28.000 34.000 46.000 70.000 142.000

Du 7.957 9.849 11.748 13.655 15.567 17.483 23.253 29.045 34.867 46.648 70.424 142.216

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.000 12.000 14.000 16.000 18.000 20.000 26.000 32.000 38.000 50.000 74.000 146.000

8 0.059 0.144 0.237 0.333 0.435 0.540 0.870 1.231 1.351 1.338 1.345 1.338

10 . 0.229 0.322 0.418 0.520 0.625 0.956 1.316 1.436 1.423 1.430 1.423

12 . . 0.415 0.511 0.612 0.718 1.048 1.409 1.529 1.516 1.523 1.516

14 . . . 0.608 0.709 0.815 1.145 1.505 1.626 1.613 1.620 1.612

16 . . . . 0.810 0.916 1.246 1.607 1.727 1.714 1.721 1.714

18 . . . . . 1.022 1.352 1.712 1.833 1.820 1.827 1.819

24 . . . . . . 1.682 2.043 2.163 2.150 2.157 2.149

30 . . . . . . . 2.403 2.523 2.510 2.517 2.510

36 . . . . . . . . 2.644 2.631 2.637 2.630

48 . . . . . . . . . 2.618 2.625 2.617

72 . . . . . . . . . . 2.631 2.624

144 . . . . . . . . . . . 2.617

**CONTACT RATIO FOR PROFILE SHIFT 6%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.522 1.488 1.464 1.445 1.429 1.414 1.377 1.344 1.314 1.265 1.205 1.136

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.060 8.060 10.060 12.060 14.060 16.060 22.060 28.060 34.060 46.060 70.060 142.060

Du 7.945 9.837 11.739 13.646 15.560 17.478 23.250 29.044 34.877 46.667 70.456 142.263

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.060 12.060 14.060 16.060 18.060 20.060 26.060 32.060 38.060 50.060 74.060 146.060

8 0.151 0.239 0.331 0.430 0.530 0.635 0.969 1.342 1.387 1.389 1.395 1.386

10 . 0.327 0.419 0.517 0.618 0.723 1.057 1.429 1.475 1.476 1.482 1.474

12 . . 0.511 0.609 0.710 0.815 1.149 1.521 1.566 1.568 1.574 1.566

14 . . . 0.708 0.808 0.913 1.247 1.619 1.665 1.666 1.672 1.664

16 . . . . 0.909 1.014 1.348 1.720 1.765 1.767 1.773 1.764

18 . . . . . 1.119 1.453 1.825 1.870 1.872 1.877 1.869

24 . . . . . . 1.786 2.158 2.204 2.205 2.211 2.203

30 . . . . . . . 2.530 2.576 2.577 2.583 2.575

36 . . . . . . . . 2.621 2.623 2.628 2.620

48 . . . . . . . . . 2.624 2.630 2.621

72 . . . . . . . . . . 2.635 2.627

144 . . . . . . . . . . . 2.618

**CONTACT RATIO FOR PROFILE SHIFT 12%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.502 1.470 1.447 1.428 1.413 1.398 1.362 1.329 1.299 1.253 1.195 1.131

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.120 8.120 10.120 12.120 14.120 16.120 22.120 28.120 34.120 46.120 70.120 142.120

Du 7.933 9.828 11.730 13.638 15.554 17.471 23.246 29.044 34.887 46.687 70.490 142.309

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.120 12.120 14.120 16.120 18.120 20.120 26.120 32.120 38.120 50.120 74.120 146.120

8 0.238 0.326 0.420 0.521 0.622 0.731 1.072 1.425 1.430 1.439 1.443 1.435

10 . 0.413 0.508 0.609 0.709 0.818 1.158 1.511 1.517 1.526 1.529 1.521

12 . . 0.602 0.703 0.803 0.912 1.252 1.605 1.610 1.619 1.623 1.615

14 . . . 0.803 0.904 1.013 1.353 1.706 1.710 1.719 1.723 1.715

16 . . . . 1.005 1.113 1.453 1.806 1.811 1.820 1.823 1.815

18 . . . . . 1.222 1.562 1.915 1.919 1.928 1.931 1.923

24 . . . . . . 1.901 2.254 2.258 2.267 2.270 2.262

30 . . . . . . . 2.606 2.611 2.619 2.622 2.614

36 . . . . . . . . 2.615 2.624 2.627 2.618

48 . . . . . . . . . 2.632 2.635 2.626

72 . . . . . . . . . . 2.638 2.629

144 . . . . . . . . . . . 2.620

**CONTACT RATIO FOR PROFILE SHIFT 18%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.482 1.452 1.429 1.411 1.396 1.382 1.347 1.314 1.285 1.240 1.188 1.125

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.180 8.180 10.180 12.180 14.180 16.180 22.180 28.180 34.180 46.180 70.180 142.180

Du 7.922 9.816 11.720 13.631 15.547 17.465 23.242 29.045 34.895 46.709 70.537 142.356

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.180 12.180 14.180 16.180 18.180 20.180 26.180 32.180 38.180 50.180 74.180 146.180

8 0.319 0.410 0.507 0.608 0.712 0.823 1.170 1.479 1.481 1.484 1.475 1.481

10 . 0.501 0.598 0.699 0.802 0.913 1.260 1.569 1.571 1.574 1.564 1.570

12 . . 0.694 0.795 0.898 1.009 1.355 1.664 1.666 1.669 1.659 1.665

14 . . . 0.895 0.998 1.109 1.455 1.764 1.766 1.768 1.758 1.765

16 . . . . 1.101 1.212 1.558 1.866 1.868 1.870 1.860 1.866

18 . . . . . 1.323 1.668 1.977 1.978 1.981 1.970 1.976

24 . . . . . . 2.014 2.322 2.323 2.325 2.314 2.320

30 . . . . . . . 2.630 2.631 2.633 2.622 2.627

36 . . . . . . . . 2.632 2.633 2.622 2.628

48 . . . . . . . . . 2.635 2.623 2.629

72 . . . . . . . . . . 2.612 2.616

144 . . . . . . . . . . . 2.620

**CONTACT RATIO FOR PROFILE SHIFT 24%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.461 1.433 1.412 1.395 1.380 1.367 1.331 1.299 1.271 1.229 1.179 1.120

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.240 8.240 10.240 12.240 14.240 16.240 22.240 28.240 34.240 46.240 70.240 142.240

Du 7.908 9.805 11.712 13.623 15.539 17.459 23.241 29.049 34.911 46.742 70.572 142.404

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.240 12.240 14.240 16.240 18.240 20.240 26.240 32.240 38.240 50.240 74.240 146.240

8 0.400 0.493 0.591 0.694 0.802 0.914 1.261 1.509 1.512 1.514 1.522 1.530

10 . 0.586 0.683 0.786 0.894 1.005 1.352 1.599 1.602 1.603 1.611 1.619

12 . . 0.780 0.882 0.990 1.101 1.447 1.694 1.697 1.698 1.706 1.713

14 . . . 0.984 1.092 1.203 1.549 1.795 1.798 1.799 1.806 1.813

16 . . . . 1.199 1.310 1.656 1.902 1.904 1.905 1.912 1.919

18 . . . . . 1.421 1.766 2.012 2.014 2.015 2.022 2.029

24 . . . . . . 2.110 2.356 2.358 2.358 2.365 2.371

30 . . . . . . . 2.601 2.603 2.603 2.609 2.615

36 . . . . . . . . 2.604 2.604 2.610 2.615

48 . . . . . . . . . 2.603 2.608 2.613

72 . . . . . . . . . . 2.613 2.617

144 . . . . . . . . . . . 2.620

**CONTACT RATIO FOR PROFILE SHIFT 30%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.442 1.416 1.395 1.378 1.364 1.351 1.316 1.285 1.258 1.218 1.170 1.115

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.300 8.300 10.300 12.300 14.300 16.300 22.300 28.300 34.300 46.300 70.300 142.300

Du 7.897 9.798 11.703 13.616 15.532 17.454 23.238 29.053 34.926 46.766 70.608 142.452

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.300 12.300 14.300 16.300 18.300 20.300 26.300 32.300 38.300 50.300 74.300 146.300

8 0.474 0.568 0.670 0.775 0.888 1.000 1.355 1.551 1.548 1.557 1.565 1.575

10 . 0.661 0.763 0.867 0.980 1.091 1.445 1.641 1.638 1.646 1.654 1.663

12 . . 0.864 0.968 1.080 1.191 1.544 1.739 1.737 1.745 1.752 1.761

14 . . . 1.071 1.183 1.294 1.647 1.841 1.838 1.846 1.853 1.862

16 . . . . 1.295 1.406 1.758 1.952 1.949 1.956 1.963 1.971

18 . . . . . 1.517 1.868 2.062 2.059 2.066 2.072 2.080

24 . . . . . . 2.219 2.412 2.408 2.414 2.420 2.428

30 . . . . . . . 2.605 2.600 2.606 2.611 2.618

36 . . . . . . . . 2.595 2.601 2.606 2.612

48 . . . . . . . . . 2.606 2.610 2.615

72 . . . . . . . . . . 2.613 2.617

144 . . . . . . . . . . . 2.620

**CONTACT RATIO FOR PROFILE SHIFT 36%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.423 1.398 1.378 1.362 1.348 1.335 1.301 1.270 1.244 1.206 1.161 1.111

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.360 8.360 10.360 12.360 14.360 16.360 22.360 28.360 34.360 46.360 70.360 142.360

Du 7.887 9.787 11.695 13.608 15.526 17.449 23.237 29.060 34.938 46.790 70.644 142.501

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.360 12.360 14.360 16.360 18.360 20.360 26.360 32.360 38.360 50.360 74.360 146.360

8 0.546 0.643 0.748 0.857 0.969 1.084 1.446 1.582 1.592 1.598 1.607 1.619

10 . 0.740 0.844 0.953 1.064 1.178 1.539 1.675 1.685 1.690 1.699 1.710

12 . . 0.947 1.055 1.166 1.280 1.640 1.775 1.785 1.790 1.798 1.809

14 . . . 1.163 1.273 1.387 1.746 1.881 1.890 1.894 1.902 1.913

16 . . . . 1.384 1.497 1.856 1.990 1.999 2.003 2.010 2.020

18 . . . . . 1.610 1.968 2.102 2.110 2.114 2.121 2.131

24 . . . . . . 2.325 2.458 2.466 2.469 2.475 2.484

30 . . . . . . . 2.590 2.597 2.599 2.604 2.613

36 . . . . . . . . 2.604 2.606 2.610 2.618

48 . . . . . . . . . 2.606 2.610 2.616

72 . . . . . . . . . . 2.612 2.616

144 . . . . . . . . . . . 2.618

**CONTACT RATIO FOR PROFILE SHIFT 42%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.404 1.380 1.361 1.346 1.332 1.320 1.286 1.256 1.231 1.195 1.153 1.106

Db 7.745 9.681 11.618 13.554 15.490 17.427 23.236 29.044 34.853 46.471 69.707 139.413

Dd 6.420 8.420 10.420 12.420 14.420 16.420 22.420 28.420 34.420 46.420 70.420 142.420

Du 7.874 9.778 11.686 13.602 15.521 17.445 23.236 29.070 34.956 46.817 70.682 142.550

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.420 12.420 14.420 16.420 18.420 20.420 26.420 32.420 38.420 50.420 74.420 146.420

8 0.619 0.719 0.827 0.936 1.050 1.166 1.544 1.614 1.628 1.639 1.650 1.665

10 . 0.817 0.924 1.032 1.146 1.262 1.638 1.707 1.721 1.732 1.742 1.756

12 . . 1.030 1.138 1.252 1.367 1.742 1.810 1.823 1.834 1.843 1.857

14 . . . 1.245 1.358 1.473 1.847 1.915 1.928 1.937 1.946 1.959

16 . . . . 1.471 1.585 1.959 2.026 2.038 2.047 2.056 2.068

18 . . . . . 1.699 2.072 2.139 2.151 2.159 2.167 2.180

24 . . . . . . 2.443 2.509 2.520 2.528 2.534 2.545

30 . . . . . . . 2.574 2.584 2.591 2.596 2.606

36 . . . . . . . . 2.594 2.600 2.605 2.614

48 . . . . . . . . . 2.604 2.608 2.615

72 . . . . . . . . . . 2.609 2.615

144 . . . . . . . . . . . 2.617

**PRESSURE ANGLE 20.0 DEGREES**

**CONTACT RATIO FOR PROFILE SHIFT 0%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.383 1.343 1.309 1.279 1.251 1.223 1.154 1.105 1.068 1.017 0.964 0.907

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.000 8.000 10.000 12.000 14.000 16.000 22.000 28.000 34.000 46.000 70.000 142.000

Du 7.611 9.450 11.302 13.165 15.036 16.917 22.675 28.536 34.441 46.322 70.215 142.111

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.000 12.000 14.000 16.000 18.000 20.000 26.000 32.000 38.000 50.000 74.000 146.000

8 0.524 0.672 0.827 0.991 1.158 1.255 1.253 1.251 1.253 1.256 1.253 1.250

10 . 0.820 0.975 1.139 1.306 1.403 1.401 1.399 1.401 1.404 1.400 1.398

12 . . 1.130 1.294 1.461 1.558 1.557 1.554 1.556 1.559 1.556 1.553

14 . . . 1.459 1.625 1.722 1.721 1.718 1.720 1.723 1.720 1.717

16 . . . . 1.791 1.888 1.887 1.884 1.887 1.890 1.886 1.883

18 . . . . . 1.985 1.984 1.981 1.983 1.987 1.983 1.980

24 . . . . . . 1.983 1.980 1.982 1.985 1.982 1.979

30 . . . . . . . 1.977 1.980 1.983 1.979 1.976

36 . . . . . . . . 1.982 1.985 1.981 1.979

48 . . . . . . . . . 1.988 1.984 1.982

72 . . . . . . . . . . 1.981 1.978

144 . . . . . . . . . . . 1.975

**CONTACT RATIO FOR PROFILE SHIFT 6%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.360 1.321 1.288 1.258 1.230 1.203 1.136 1.090 1.053 1.008 0.957 0.902

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.060 8.060 10.060 12.060 14.060 16.060 22.060 28.060 34.060 46.060 70.060 142.060

Du 7.602 9.443 11.297 13.162 15.035 16.922 22.694 28.565 34.470 46.372 70.265 142.161

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.060 12.060 14.060 16.060 18.060 20.060 26.060 32.060 38.060 50.060 74.060 146.060

8 0.602 0.751 0.909 1.072 1.249 1.288 1.293 1.289 1.295 1.289 1.290 1.291

10 . 0.900 1.058 1.220 1.397 1.437 1.442 1.437 1.444 1.438 1.439 1.440

12 . . 1.215 1.378 1.555 1.595 1.600 1.595 1.602 1.595 1.597 1.598

14 . . . 1.540 1.717 1.757 1.762 1.757 1.764 1.758 1.759 1.760

16 . . . . 1.895 1.934 1.939 1.934 1.941 1.935 1.936 1.937

18 . . . . . 1.974 1.979 1.974 1.981 1.974 1.976 1.977

24 . . . . . . 1.984 1.979 1.986 1.979 1.981 1.982

30 . . . . . . . 1.974 1.981 1.974 1.976 1.977

36 . . . . . . . . 1.988 1.981 1.982 1.983

48 . . . . . . . . . 1.974 1.976 1.977

72 . . . . . . . . . . 1.977 1.978

144 . . . . . . . . . . . 1.979

**CONTACT RATIO FOR PROFILE SHIFT 12%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.337 1.299 1.267 1.238 1.210 1.183 1.119 1.075 1.042 0.998 0.948 0.897

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.120 8.120 10.120 12.120 14.120 16.120 22.120 28.120 34.120 46.120 70.120 142.120

Du 7.594 9.437 11.294 13.160 15.035 16.928 22.713 28.592 34.511 46.412 70.306 142.212

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.120 12.120 14.120 16.120 18.120 20.120 26.120 32.120 38.120 50.120 74.120 146.120

8 0.675 0.827 0.984 1.148 1.318 1.324 1.330 1.327 1.327 1.326 1.332 1.331

10 . 0.978 1.135 1.299 1.469 1.475 1.481 1.478 1.478 1.477 1.483 1.482

12 . . 1.292 1.456 1.626 1.632 1.638 1.634 1.634 1.634 1.639 1.639

14 . . . 1.621 1.791 1.796 1.802 1.799 1.799 1.798 1.804 1.803

16 . . . . 1.961 1.966 1.972 1.969 1.969 1.968 1.973 1.973

18 . . . . . 1.971 1.978 1.974 1.974 1.973 1.979 1.978

24 . . . . . . 1.984 1.980 1.980 1.979 1.985 1.984

30 . . . . . . . 1.976 1.976 1.975 1.981 1.980

36 . . . . . . . . 1.976 1.975 1.980 1.980

48 . . . . . . . . . 1.974 1.979 1.979

72 . . . . . . . . . . 1.985 1.984

144 . . . . . . . . . . . 1.982

**CONTACT RATIO FOR PROFILE SHIFT 18%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.314 1.277 1.246 1.217 1.189 1.164 1.102 1.059 1.028 0.988 0.942 0.894

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.180 8.180 10.180 12.180 14.180 16.180 22.180 28.180 34.180 46.180 70.180 142.180

Du 7.587 9.431 11.290 13.158 15.036 16.935 22.735 28.617 34.542 46.453 70.357 142.267

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.180 12.180 14.180 16.180 18.180 20.180 26.180 32.180 38.180 50.180 74.180 146.180

8 0.746 0.900 1.060 1.227 1.355 1.363 1.365 1.367 1.366 1.363 1.367 1.368

10 . 1.054 1.214 1.381 1.509 1.516 1.518 1.520 1.519 1.516 1.520 1.521

12 . . 1.373 1.540 1.668 1.675 1.677 1.679 1.678 1.675 1.679 1.680

14 . . . 1.707 1.835 1.842 1.844 1.846 1.844 1.842 1.845 1.847

16 . . . . 1.963 1.970 1.972 1.974 1.972 1.969 1.973 1.974

18 . . . . . 1.977 1.979 1.981 1.979 1.976 1.980 1.981

24 . . . . . . 1.981 1.982 1.981 1.978 1.981 1.982

30 . . . . . . . 1.983 1.982 1.979 1.982 1.983

36 . . . . . . . . 1.980 1.977 1.980 1.981

48 . . . . . . . . . 1.974 1.977 1.977

72 . . . . . . . . . . 1.980 1.980

144 . . . . . . . . . . . 1.981

**CONTACT RATIO FOR PROFILE SHIFT 24%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.291 1.256 1.225 1.196 1.169 1.144 1.085 1.045 1.017 0.978 0.936 0.891

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.240 8.240 10.240 12.240 14.240 16.240 22.240 28.240 34.240 46.240 70.240 142.240

Du 7.578 9.426 11.286 13.157 15.039 16.944 22.757 28.649 34.584 46.495 70.408 142.323

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.240 12.240 14.240 16.240 18.240 20.240 26.240 32.240 38.240 50.240 74.240 146.240

8 0.818 0.973 1.136 1.303 1.394 1.398 1.402 1.402 1.398 1.401 1.404 1.407

10 . 1.127 1.290 1.456 1.547 1.552 1.555 1.555 1.551 1.554 1.556 1.559

12 . . 1.453 1.619 1.709 1.714 1.717 1.717 1.713 1.716 1.718 1.721

14 . . . 1.785 1.875 1.880 1.883 1.883 1.878 1.881 1.884 1.886

16 . . . . 1.966 1.970 1.973 1.973 1.968 1.971 1.973 1.976

18 . . . . . 1.975 1.977 1.977 1.972 1.975 1.977 1.980

24 . . . . . . 1.980 1.979 1.974 1.977 1.979 1.981

30 . . . . . . . 1.978 1.974 1.976 1.978 1.980

36 . . . . . . . . 1.969 1.971 1.972 1.975

48 . . . . . . . . . 1.972 1.974 1.976

72 . . . . . . . . . . 1.975 1.977

144 . . . . . . . . . . . 1.978

**CONTACT RATIO FOR PROFILE SHIFT 30%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.269 1.234 1.204 1.179 1.149 1.125 1.069 1.031 1.004 0.968 0.927 0.886

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.300 8.300 10.300 12.300 14.300 16.300 22.300 28.300 34.300 46.300 70.300 142.300

Du 7.572 9.421 11.283 13.177 15.043 16.957 22.782 28.682 34.617 46.538 70.451 142.375

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.300 12.300 14.300 16.300 18.300 20.300 26.300 32.300 38.300 50.300 74.300 146.300

8 0.885 1.043 1.209 1.265 1.429 1.424 1.433 1.434 1.435 1.436 1.443 1.446

10 . 1.201 1.366 1.422 1.586 1.581 1.589 1.590 1.591 1.592 1.599 1.601

12 . . 1.531 1.586 1.750 1.745 1.753 1.754 1.754 1.755 1.762 1.764

14 . . . 1.642 1.806 1.800 1.808 1.809 1.809 1.810 1.817 1.819

16 . . . . 1.969 1.964 1.971 1.972 1.972 1.973 1.979 1.981

18 . . . . . 1.958 1.965 1.966 1.966 1.966 1.973 1.975

24 . . . . . . 1.972 1.972 1.972 1.972 1.978 1.980

30 . . . . . . . 1.972 1.972 1.972 1.978 1.979

36 . . . . . . . . 1.971 1.971 1.977 1.978

48 . . . . . . . . . 1.971 1.976 1.977

72 . . . . . . . . . . 1.981 1.981

144 . . . . . . . . . . . 1.981

**CONTACT RATIO FOR PROFILE SHIFT 36%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.246 1.213 1.183 1.155 1.129 1.107 1.054 1.020 0.992 0.959 0.922 0.885

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.360 8.360 10.360 12.360 14.360 16.360 22.360 28.360 34.360 46.360 70.360 142.360

Du 7.564 9.416 11.281 13.156 15.049 16.969 22.811 28.724 34.652 46.581 70.503 142.435

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.360 12.360 14.360 16.360 18.360 20.360 26.360 32.360 38.360 50.360 74.360 146.360

8 0.954 1.114 1.279 1.450 1.461 1.460 1.462 1.460 1.472 1.473 1.479 1.482

10 . 1.272 1.437 1.608 1.618 1.617 1.619 1.616 1.628 1.629 1.635 1.637

12 . . 1.601 1.772 1.782 1.781 1.782 1.779 1.791 1.791 1.797 1.799

14 . . . 1.942 1.952 1.951 1.952 1.949 1.960 1.960 1.966 1.968

16 . . . . 1.962 1.961 1.961 1.958 1.970 1.969 1.975 1.977

18 . . . . . 1.959 1.959 1.956 1.967 1.966 1.972 1.974

24 . . . . . . 1.959 1.955 1.966 1.965 1.970 1.972

30 . . . . . . . 1.951 1.962 1.960 1.965 1.966

36 . . . . . . . . 1.972 1.970 1.975 1.976

48 . . . . . . . . . 1.968 1.972 1.973

72 . . . . . . . . . . 1.976 1.975

144 . . . . . . . . . . . 1.974

**CONTACT RATIO FOR PROFILE SHIFT 42%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.224 1.192 1.163 1.135 1.110 1.088 1.038 1.005 0.982 0.950 0.916 0.881

Db 7.518 9.397 11.276 13.156 15.035 16.914 22.553 28.191 33.829 45.105 67.658 135.316

Dd 6.420 8.420 10.420 12.420 14.420 16.420 22.420 28.420 34.420 46.420 70.420 142.420

Du 7.557 9.412 11.279 13.157 15.059 16.984 22.835 28.751 34.695 46.624 70.555 142.487

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.420 12.420 14.420 16.420 18.420 20.420 26.420 32.420 38.420 50.420 74.420 146.420

8 1.022 1.183 1.354 1.486 1.490 1.491 1.498 1.500 1.503 1.508 1.515 1.522

10 . 1.342 1.513 1.645 1.648 1.648 1.655 1.657 1.659 1.664 1.670 1.677

12 . . 1.683 1.815 1.818 1.818 1.824 1.825 1.828 1.833 1.838 1.845

14 . . . 1.946 1.949 1.949 1.954 1.955 1.957 1.962 1.967 1.974

16 . . . . 1.951 1.951 1.956 1.957 1.959 1.963 1.968 1.975

18 . . . . . 1.951 1.955 1.956 1.958 1.962 1.967 1.973

24 . . . . . . 1.959 1.959 1.960 1.964 1.968 1.974

30 . . . . . . . 1.959 1.959 1.963 1.967 1.972

36 . . . . . . . . 1.960 1.963 1.967 1.971

48 . . . . . . . . . 1.965 1.968 1.973

72 . . . . . . . . . . 1.971 1.974

144 . . . . . . . . . . . 1.976

**PRESSURE ANGLE 25.0 DEGREES**

**CONTACT RATIO FOR PROFILE SHIFT 0%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.206 1.149 1.096 1.050 1.011 0.978 0.905 0.859 0.825 0.783 0.735 0.689

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.000 8.000 10.000 12.000 14.000 16.000 22.000 28.000 34.000 46.000 70.000 142.000

Du 7.275 9.066 10.880 12.742 14.644 16.563 22.413 28.329 34.269 46.203 70.131 142.068

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.000 12.000 14.000 16.000 18.000 20.000 26.000 32.000 38.000 50.000 74.000 146.000

8 0.979 1.190 1.323 1.322 1.318 1.322 1.321 1.319 1.321 1.319 1.321 1.319

10 . 1.401 1.534 1.533 1.529 1.533 1.532 1.530 1.532 1.530 1.532 1.530

12 . . 1.668 1.667 1.662 1.667 1.666 1.664 1.665 1.663 1.665 1.663

14 . . . 1.666 1.661 1.666 1.665 1.663 1.664 1.662 1.664 1.662

16 . . . . 1.657 1.661 1.660 1.658 1.660 1.658 1.660 1.658

18 . . . . . 1.666 1.665 1.662 1.664 1.662 1.664 1.662

24 . . . . . . 1.664 1.662 1.663 1.661 1.663 1.661

30 . . . . . . . 1.659 1.661 1.659 1.661 1.659

36 . . . . . . . . 1.663 1.661 1.663 1.661

48 . . . . . . . . . 1.659 1.661 1.659

72 . . . . . . . . . . 1.662 1.661

144 . . . . . . . . . . . 1.659

**CONTACT RATIO FOR PROFILE SHIFT 6%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.180 1.124 1.072 1.027 0.990 0.958 0.890 0.844 0.813 0.772 0.729 0.685

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.060 8.060 10.060 12.060 14.060 16.060 22.060 28.060 34.060 46.060 70.060 142.060

Du 7.271 9.065 10.886 12.756 14.662 16.589 22.448 28.365 34.313 46.247 70.183 142.121

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.060 12.060 14.060 16.060 18.060 20.060 26.060 32.060 38.060 50.060 74.060 146.060

8 1.047 1.260 1.355 1.356 1.355 1.355 1.355 1.356 1.355 1.355 1.355 1.355

10 . 1.472 1.568 1.569 1.568 1.568 1.568 1.569 1.568 1.568 1.568 1.568

12 . . 1.664 1.665 1.664 1.664 1.663 1.664 1.663 1.663 1.663 1.663

14 . . . 1.666 1.665 1.665 1.664 1.665 1.664 1.664 1.664 1.664

16 . . . . 1.664 1.664 1.663 1.664 1.663 1.663 1.663 1.663

18 . . . . . 1.663 1.663 1.664 1.663 1.663 1.663 1.663

24 . . . . . . 1.663 1.664 1.663 1.663 1.663 1.663

30 . . . . . . . 1.664 1.663 1.663 1.663 1.663

36 . . . . . . . . 1.662 1.662 1.662 1.662

48 . . . . . . . . . 1.662 1.662 1.662

72 . . . . . . . . . . 1.662 1.662

144 . . . . . . . . . . . 1.662

**CONTACT RATIO FOR PROFILE SHIFT 12%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.154 1.099 1.048 1.005 0.969 0.939 0.874 0.832 0.802 0.765 0.724 0.683

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.120 8.120 10.120 12.120 14.120 16.120 22.120 28.120 34.120 46.120 70.120 142.120

Du 7.266 9.064 10.893 12.774 14.683 16.616 22.484 28.409 34.357 46.300 70.236 142.181

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.120 12.120 14.120 16.120 18.120 20.120 26.120 32.120 38.120 50.120 74.120 146.120

8 1.115 1.329 1.388 1.386 1.390 1.388 1.389 1.388 1.389 1.387 1.390 1.388

10 . 1.543 1.602 1.600 1.603 1.602 1.602 1.601 1.602 1.601 1.603 1.602

12 . . 1.661 1.659 1.663 1.661 1.661 1.661 1.662 1.660 1.662 1.661

14 . . . 1.657 1.661 1.659 1.659 1.659 1.660 1.658 1.660 1.659

16 . . . . 1.664 1.662 1.663 1.662 1.663 1.661 1.663 1.662

18 . . . . . 1.661 1.661 1.660 1.661 1.660 1.662 1.660

24 . . . . . . 1.661 1.660 1.661 1.660 1.662 1.660

30 . . . . . . . 1.659 1.660 1.659 1.661 1.659

36 . . . . . . . . 1.661 1.660 1.662 1.660

48 . . . . . . . . . 1.658 1.660 1.658

72 . . . . . . . . . . 1.662 1.660

144 . . . . . . . . . . . 1.659

**CONTACT RATIO FOR PROFILE SHIFT 18%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.128 1.073 1.024 0.983 0.949 0.920 0.859 0.818 0.792 0.755 0.718 0.679

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.180 8.180 10.180 12.180 14.180 16.180 22.180 28.180 34.180 46.180 70.180 142.180

Du 7.262 9.063 10.903 12.791 14.708 16.645 22.521 28.446 34.402 46.345 70.289 142.234

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.180 12.180 14.180 16.180 18.180 20.180 26.180 32.180 38.180 50.180 74.180 146.180

8 1.183 1.400 1.418 1.420 1.421 1.421 1.422 1.425 1.423 1.424 1.425 1.425

10 . 1.617 1.635 1.637 1.637 1.638 1.639 1.641 1.640 1.640 1.641 1.642

12 . . 1.653 1.654 1.655 1.656 1.656 1.659 1.657 1.658 1.658 1.659

14 . . . 1.656 1.656 1.657 1.658 1.660 1.658 1.659 1.659 1.660

16 . . . . 1.657 1.657 1.658 1.660 1.659 1.659 1.660 1.661

18 . . . . . 1.658 1.658 1.661 1.659 1.660 1.660 1.661

24 . . . . . . 1.659 1.661 1.660 1.660 1.660 1.661

30 . . . . . . . 1.663 1.662 1.662 1.662 1.663

36 . . . . . . . . 1.660 1.660 1.661 1.661

48 . . . . . . . . . 1.661 1.661 1.661

72 . . . . . . . . . . 1.661 1.661

144 . . . . . . . . . . . 1.662

**CONTACT RATIO FOR PROFILE SHIFT 24%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.102 1.048 1.000 0.961 0.928 0.902 0.845 0.807 0.781 0.746 0.712 0.674

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.240 8.240 10.240 12.240 14.240 16.240 22.240 28.240 34.240 46.240 70.240 142.240

Du 7.260 9.063 10.914 12.808 14.730 16.674 22.559 28.492 34.448 46.391 70.342 142.287

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.240 12.240 14.240 16.240 18.240 20.240 26.240 32.240 38.240 50.240 74.240 146.240

8 1.247 1.450 1.450 1.452 1.455 1.452 1.454 1.455 1.456 1.458 1.458 1.461

10 . 1.652 1.652 1.654 1.656 1.654 1.655 1.656 1.657 1.660 1.659 1.662

12 . . 1.652 1.654 1.656 1.654 1.655 1.656 1.657 1.659 1.659 1.661

14 . . . 1.656 1.658 1.655 1.657 1.657 1.658 1.661 1.660 1.663

16 . . . . 1.660 1.657 1.659 1.659 1.660 1.662 1.662 1.664

18 . . . . . 1.654 1.656 1.656 1.657 1.659 1.659 1.661

24 . . . . . . 1.657 1.657 1.658 1.660 1.659 1.662

30 . . . . . . . 1.658 1.658 1.660 1.659 1.662

36 . . . . . . . . 1.658 1.661 1.660 1.662

48 . . . . . . . . . 1.663 1.662 1.664

72 . . . . . . . . . . 1.660 1.662

144 . . . . . . . . . . . 1.664

**CONTACT RATIO FOR PROFILE SHIFT 30%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.077 1.023 0.977 0.940 0.910 0.885 0.830 0.794 0.771 0.740 0.707 0.673

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.300 8.300 10.300 12.300 14.300 16.300 22.300 28.300 34.300 46.300 70.300 142.300

Du 7.257 9.065 10.926 12.828 14.759 16.705 22.597 28.531 34.494 46.444 70.395 142.347

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.300 12.300 14.300 16.300 18.300 20.300 26.300 32.300 38.300 50.300 74.300 146.300

8 1.312 1.482 1.482 1.483 1.482 1.483 1.485 1.489 1.488 1.490 1.492 1.494

10 . 1.652 1.652 1.653 1.651 1.652 1.654 1.658 1.657 1.659 1.660 1.662

12 . . 1.651 1.652 1.650 1.651 1.653 1.657 1.656 1.657 1.659 1.661

14 . . . 1.652 1.650 1.652 1.654 1.657 1.656 1.657 1.659 1.661

16 . . . . 1.648 1.649 1.651 1.655 1.653 1.655 1.656 1.658

18 . . . . . 1.650 1.652 1.656 1.654 1.655 1.657 1.658

24 . . . . . . 1.654 1.657 1.655 1.656 1.658 1.659

30 . . . . . . . 1.660 1.658 1.659 1.660 1.662

36 . . . . . . . . 1.657 1.657 1.658 1.660

48 . . . . . . . . . 1.658 1.659 1.660

72 . . . . . . . . . . 1.659 1.660

144 . . . . . . . . . . . 1.661

**CONTACT RATIO FOR PROFILE SHIFT 36%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.051 0.999 0.955 0.919 0.890 0.867 0.817 0.784 0.761 0.731 0.702 0.669

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.360 8.360 10.360 12.360 14.360 16.360 22.360 28.360 34.360 46.360 70.360 142.360

Du 7.254 9.070 10.941 12.852 14.784 16.735 22.637 28.577 34.541 46.491 70.448 142.401

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.360 12.360 14.360 16.360 18.360 20.360 26.360 32.360 38.360 50.360 74.360 146.360

8 1.377 1.508 1.511 1.512 1.515 1.515 1.517 1.520 1.521 1.525 1.526 1.530

10 . 1.638 1.640 1.641 1.644 1.644 1.646 1.649 1.650 1.654 1.654 1.658

12 . . 1.643 1.643 1.646 1.646 1.648 1.650 1.651 1.655 1.655 1.659

14 . . . 1.644 1.647 1.646 1.648 1.650 1.651 1.654 1.655 1.659

16 . . . . 1.649 1.649 1.650 1.653 1.653 1.656 1.657 1.661

18 . . . . . 1.649 1.650 1.652 1.652 1.656 1.656 1.660

24 . . . . . . 1.650 1.652 1.653 1.656 1.656 1.659

30 . . . . . . . 1.654 1.654 1.657 1.657 1.660

36 . . . . . . . . 1.654 1.657 1.657 1.660

48 . . . . . . . . . 1.659 1.659 1.662

72 . . . . . . . . . . 1.658 1.661

144 . . . . . . . . . . . 1.663

**CONTACT RATIO FOR PROFILE SHIFT 42%**

TEETH 8 10 12 14 16 18 24 30 36 48 72 144

GAP 1.026 0.974 0.932 0.899 0.871 0.850 0.803 0.771 0.752 0.725 0.697 0.668

Db 7.250 9.063 10.876 12.688 14.501 16.314 21.751 27.189 32.627 43.503 65.254 130.508

Dd 6.420 8.420 10.420 12.420 14.420 16.420 22.420 28.420 34.420 46.420 70.420 142.420

Du 7.253 9.076 10.957 12.873 14.810 16.767 22.677 28.618 34.588 46.545 70.502 142.461

Dp 8.000 10.000 12.000 14.000 16.000 18.000 24.000 30.000 36.000 48.000 72.000 144.000

Da 10.420 12.420 14.420 16.420 18.420 20.420 26.420 32.420 38.420 50.420 74.420 146.420

8 1.441 1.538 1.541 1.544 1.547 1.545 1.548 1.554 1.554 1.557 1.560 1.564

10 . 1.634 1.637 1.639 1.642 1.640 1.643 1.648 1.648 1.650 1.654 1.657

12 . . 1.640 1.642 1.644 1.643 1.645 1.650 1.649 1.652 1.655 1.658

14 . . . 1.644 1.646 1.644 1.646 1.651 1.650 1.653 1.656 1.659

16 . . . . 1.648 1.646 1.648 1.653 1.651 1.654 1.657 1.660

18 . . . . . 1.644 1.646 1.650 1.649 1.651 1.654 1.657

24 . . . . . . 1.647 1.651 1.650 1.651 1.654 1.657

30 . . . . . . . 1.655 1.654 1.655 1.657 1.660

36 . . . . . . . . 1.652 1.653 1.655 1.658

48 . . . . . . . . . 1.654 1.656 1.658

72 . . . . . . . . . . 1.657 1.659

144 . . . . . . . . . . . 1.659