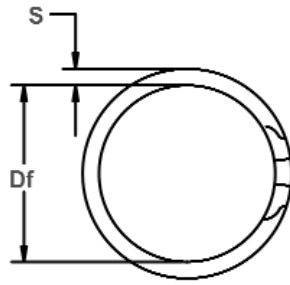


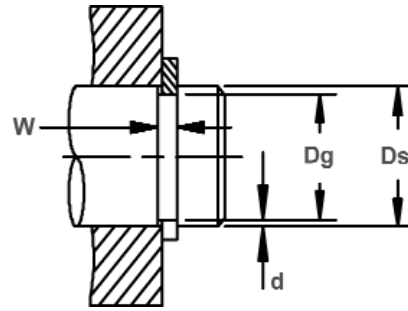
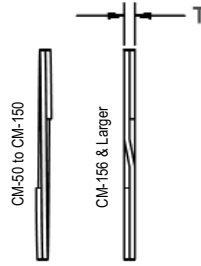
CM Spiral Shaft Rings

External, Medium Duty

These rings offer the greatest economy in price and size. They are able to handle approximately twice the thrust capacity of the CL series, and to be produced to military specifications if needed.

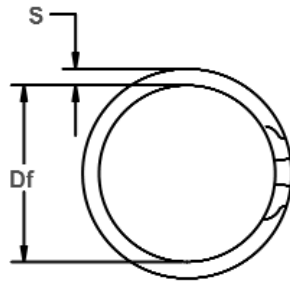


Free Diameter & Ring Measurements

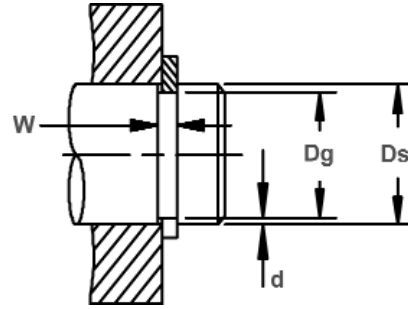
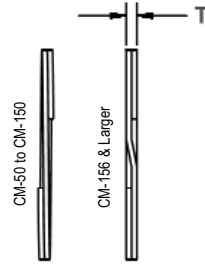


Shaft Diameter & Groove Dimensions

| RING NO. | SHAFT DIAMETER | GROOVE SIZE | | | | | RING SIZE | | | | THRUST LOAD (lbs.) | | | |
|----------|----------------|-------------|----------------|-------|----------------|-------|---------------|----------------|-----------|----------------|--------------------|----------------|-------------------------|---------------------------|
| | | DIAMETER | | WIDTH | | DEPTH | FREE DIAMETER | | THICKNESS | | SECTION | | RING Safety factor of 3 | GROOVE Safety factor of 2 |
| | | (In.) | Dg | Tol. | W | Tol. | d | Df | Tol. | T | Tol. | S | | |
| CM-50 | .500 | .474 | +.002 -.002 | .030 | +.003 -.003 | .013 | .467 | +.000 -.013 | .025 | +.002 -.002 | .045 | +.004 -.004 | 2000 | 460 |
| CM-53 | .531 | .505 | | .030 | | .013 | .498 | | .025 | | .045 | | 2130 | 490 |
| CM-55 | .551 | .525 | | .030 | | .013 | .518 | | .025 | | .045 | | 2210 | 510 |
| CM-56 | .562 | .536 | | .030 | | .013 | .529 | | .025 | | .045 | | 2250 | 520 |
| CM-59 | .594 | .569 | | .030 | | .013 | .561 | | .025 | | .045 | | 2380 | 550 |
| CM-62 | .625 | .594 | | .030 | | .016 | .585 | | .025 | | .055 | | 2500 | 710 |
| CM-65 | .656 | .625 | | .030 | | .016 | .617 | | .025 | | .055 | | 2630 | 740 |
| CM-66 | .669 | .638 | | .030 | | .016 | .629 | | .025 | | .055 | | 2680 | 760 |
| CM-68 | .687 | .656 | | .030 | | .016 | .647 | | .025 | | .055 | | 2750 | 780 |
| CM-71 | .718 | .687 | | .030 | | .016 | .679 | | .025 | | .055 | | 2880 | 810 |
| CM-75 | .750 | .719 | .036 | .016 | .710 | .031 | .065 | 3360 | 850 | | | | | |
| CM-78 | .781 | .750 | .036 | .016 | .741 | .031 | .065 | 3500 | 880 | | | | | |
| CM-81 | .812 | .781 | .036 | .016 | .771 | .031 | .065 | 3640 | 920 | | | | | |
| CM-84 | .843 | .812 | .036 | .016 | .803 | .031 | .065 | 3780 | 950 | | | | | |
| CM-87 | .875 | .838 | .036 | .019 | .828 | .031 | .065 | 3920 | 1180 | | | | | |
| CM-90 | .906 | .869 | .036 | .019 | .860 | .031 | .065 | 4060 | 1220 | | | | | |
| CM-93 | .937 | .900 | .036 | .019 | .889 | .031 | .065 | 4200 | 1260 | | | | | |
| CM-96 | .968 | .925 | .042 | .021 | .916 | .037 | .075 | 5180 | 1440 | | | | | |
| CM-98 | .984 | .941 | .042 | .021 | .930 | .037 | .075 | 5260 | 1460 | | | | | |
| CM-100 | 1.000 | .957 | .042 | .021 | .946 | .037 | .075 | 5350 | 1480 | | | | | |
| CM-102 | 1.023 | .980 | .042 | .021 | .968 | .037 | .075 | 5470 | 1520 | | | | | |
| CM-103 | 1.031 | .988 | .042 | .021 | .978 | .037 | .075 | 5510 | 1530 | | | | | |
| CM-106 | 1.062 | 1.020 | .042 | .021 | 1.007 | .037 | .075 | 5680 | 1580 | | | | | |
| CM-109 | 1.093 | 1.051 | .042 | .021 | 1.040 | .037 | .075 | 5840 | 1620 | | | | | |
| CM-112 | 1.125 | 1.083 | .042 | .021 | 1.070 | .037 | .075 | 6020 | 1670 | | | | | |
| CM-115 | 1.156 | 1.114 | .042 | .021 | 1.102 | .037 | .075 | 6180 | 1720 | | | | | |
| CM-118 | 1.188 | 1.140 | .048 | .024 | 1.127 | .043 | .085 | 7380 | 2020 | | | | | |
| CM-121 | 1.218 | 1.170 | .048 | .024 | 1.159 | .043 | .085 | 7570 | 2070 | | | | | |
| CM-125 | 1.250 | 1.202 | .048 | .024 | 1.188 | .043 | .085 | 7770 | 2120 | | | | | |
| CM-128 | 1.281 | 1.233 | .048 | .024 | 1.221 | .043 | .085 | 7960 | 2170 | | | | | |
| CM-131 | 1.312 | 1.264 | .048 | .024 | 1.251 | .043 | .095 | 8150 | 2230 | | | | | |
| CM-134 | 1.343 | 1.295 | .048 | .024 | 1.282 | .043 | .095 | 8350 | 2280 | | | | | |
| CM-137 | 1.375 | 1.323 | .048 | .026 | 1.308 | .043 | .095 | 8540 | 2530 | | | | | |
| CM-140 | 1.406 | 1.354 | .048 | .026 | 1.340 | .043 | .095 | 8740 | 2580 | | | | | |
| CM-143 | 1.437 | 1.385 | .048 | .026 | 1.370 | .043 | .095 | 8930 | 2640 | | | | | |
| CM-146 | 1.468 | 1.416 | .048 | .026 | 1.402 | .043 | .095 | 9120 | 2700 | | | | | |
| CM-150 | 1.500 | 1.448 | .048 | .026 | 1.433 | .043 | .095 | 9320 | 2760 | | | | | |



Free Diameter & Ring Measurements



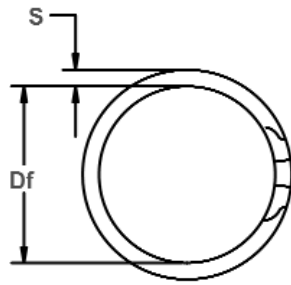
Shaft Diameter & Groove Dimensions

| RING NO. | SHAFT DIAMETER | GROOVE SIZE | | | | | RING SIZE | | | | THRUST LOAD (lbs.) | | | |
|----------|----------------|-------------|----------------|-------|----------------|-------|---------------|----------------|-----------|----------------|--------------------|----------------|-------------------------|---------------------------|
| | | DIAMETER | | WIDTH | | DEPTH | FREE DIAMETER | | THICKNESS | | SECTION | | RING Safety factor of 3 | GROOVE Safety factor of 2 |
| | | (In.) | Dg | Tol. | W | Tol. | d | Df | Tol. | T | Tol. | S | Tol. | |
| CM-156 | 1.562 | 1.507 | | .056 | | .028 | 1.490 | | .049 | | .108 | | 10100 | 3090 |
| CM-157 | 1.575 | 1.520 | | .056 | | .028 | 1.503 | | .049 | | .108 | | 10190 | 3120 |
| CM-162 | 1.625 | 1.566 | | .056 | | .030 | 1.549 | | .049 | | .108 | | 10510 | 3450 |
| CM-168 | 1.687 | 1.628 | | .056 | | .030 | 1.610 | | .049 | | .118 | | 10910 | 3580 |
| CM-175 | 1.750 | 1.691 | +.005 -.005 | .056 | | .030 | 1.673 | | .049 | | .118 | | 11310 | 3710 |
| CM-177 | 1.771 | 1.708 | | .056 | | .032 | 1.690 | | .049 | | .118 | | 11450 | 4010 |
| CM-181 | 1.813 | 1.749 | | .056 | | .032 | 1.730 | +.000 -.020 | .049 | | .118 | | 11720 | 4100 |
| CM-187 | 1.875 | 1.808 | | .056 | | .034 | 1.789 | | .049 | | .128 | | 12120 | 4510 |
| CM-193 | 1.938 | 1.871 | | .056 | | .034 | 1.851 | | .049 | | .128 | | 12530 | 4660 |
| CM-196 | 1.969 | 1.902 | | .056 | | .034 | 1.882 | | .049 | | .128 | +.004 -.004 | 12730 | 4730 |
| CM-200 | 2.000 | 1.929 | | .056 | | .035 | 1.909 | | .049 | | .128 | | 12930 | 4950 |
| CM-206 | 2.062 | 1.992 | | .056 | | .035 | 1.971 | | .049 | | .128 | | 13330 | 5100 |
| CM-212 | 2.125 | 2.051 | | .056 | +.004 -.000 | .037 | 2.029 | | .049 | | .128 | | 13740 | 5560 |
| CM-215 | 2.156 | 2.082 | | .056 | | .037 | 2.060 | | .049 | | .138 | | 13940 | 5640 |
| CM-216 | 2.165 | 2.091 | | .056 | | .037 | 2.070 | | .049 | +.003 -.003 | .138 | | 14000 | 5660 |
| CM-218 | 2.188 | 2.113 | | .056 | | .037 | 2.092 | | .049 | | .138 | | 14150 | 5720 |
| CM-225 | 2.250 | 2.176 | | .056 | | .037 | 2.153 | | .049 | | .138 | | 14550 | 5890 |
| CM-231 | 2.312 | 2.234 | | .056 | | .039 | 2.211 | | .049 | | .138 | | 14950 | 6370 |
| CM-236 | 2.362 | 2.284 | | .056 | | .039 | 2.261 | +.000 -.025 | .049 | | .138 | | 15270 | 6510 |
| CM-237 | 2.375 | 2.297 | | .056 | | .039 | 2.273 | | .049 | | .138 | | 15360 | 6550 |
| CM-243 | 2.437 | 2.355 | | .056 | | .041 | 2.331 | | .049 | | .148 | | 15760 | 7060 |
| CM-250 | 2.500 | 2.418 | +.006 -.006 | .056 | | .041 | 2.394 | | .049 | | .148 | | 16160 | 7250 |
| CM-255 | 2.559 | 2.473 | | .056 | | .043 | 2.449 | | .049 | | .148 | | 16550 | 7780 |
| CM-256 | 2.562 | 2.476 | | .056 | | .043 | 2.452 | | .049 | | .148 | | 16560 | 7790 |
| CM-262 | 2.625 | 2.539 | | .056 | | .043 | 2.514 | | .049 | | .148 | | 16970 | 7980 |
| CM-268 | 2.688 | 2.597 | | .056 | | .045 | 2.572 | | .049 | | .158 | | 17380 | 8550 |
| CM-275 | 2.750 | 2.660 | | .056 | | .045 | 2.635 | | .049 | | .158 | | 17780 | 8750 |
| CM-281 | 2.813 | 2.722 | | .056 | | .045 | 2.696 | | .049 | | .168 | | 18190 | 8950 |
| CM-287 | 2.875 | 2.781 | | .056 | | .047 | 2.755 | | .049 | | .168 | | 18590 | 9550 |
| CM-293 | 2.937 | 2.843 | | .056 | | .047 | 2.817 | | .049 | | .168 | | 18990 | 9760 |
| CM-295 | 2.952 | 2.858 | | .056 | | .047 | 2.831 | +.000 -.030 | .049 | | .168 | | 19090 | 9810 |
| CM-300 | 3.000 | 2.904 | | .068 | | .048 | 2.877 | | .061 | | .168 | +.005 -.005 | 24150 | 10180 |
| CM-306 | 3.062 | 2.966 | | .068 | | .048 | 2.938 | .061 | | .168 | 24650 | | 10390 | |
| CM-312 | 3.125 | 3.027 | | .068 | +.005 -.000 | .049 | 3.000 | | .061 | | .178 | | 25150 | 10820 |
| CM-314 | 3.149 | 3.051 | | .068 | | .049 | 3.023 | | .061 | | .178 | | 25350 | 10910 |
| CM-318 | 3.187 | 3.089 | | .068 | | .049 | 3.061 | | .061 | | .178 | | 25650 | 11040 |
| CM-325 | 3.250 | 3.150 | | .068 | | .050 | 3.121 | | .061 | | .178 | | 26160 | 11490 |

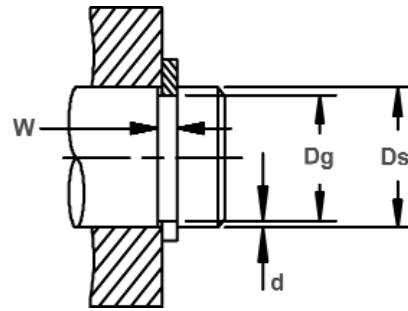
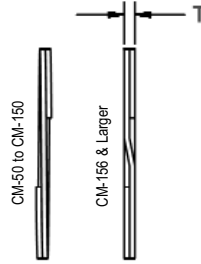
CM Spiral Shaft Rings

External, Medium Duty

These rings offer the greatest economy in price and size. They are able to handle approximately twice the thrust capacity of the CL series, and to be produced to military specifications if needed.

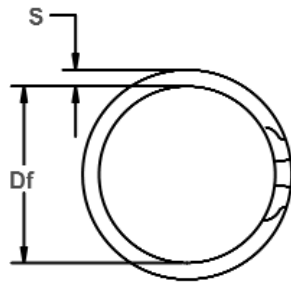


Free Diameter & Ring Measurements

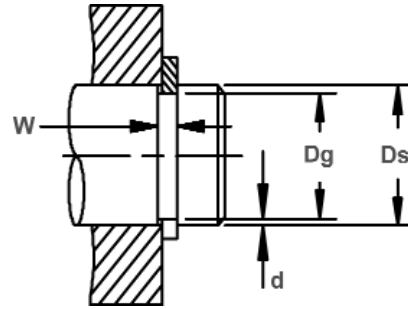
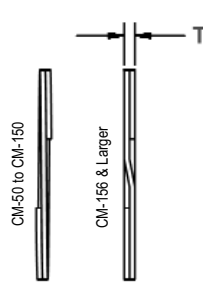


Shaft Diameter & Groove Dimensions

| RING NO. | SHAFT DIAMETER | GROOVE SIZE | | | | | RING SIZE | | | | THRUST LOAD (lbs.) | | | |
|----------|----------------|-------------|--------|-------|--------|-------|---------------|--------|-----------|--------|--------------------|--------|-------------------------|---------------------------|
| | | DIAMETER | | WIDTH | | DEPTH | FREE DIAMETER | | THICKNESS | | SECTION | | RING Safety factor of 3 | GROOVE Safety factor of 2 |
| | | Dg | Tol. | W | Tol. | d | Df | Tol. | T | Tol. | S | Tol. | | |
| CM-331 | 3.312 | 3.208 | | .068 | | .052 | 3.180 | | .061 | | .188 | | 26660 | 12170 |
| CM-334 | 3.343 | 3.239 | | .068 | | .052 | 3.210 | + .000 | .061 | | .188 | | 26910 | 12290 |
| CM-337 | 3.375 | 3.271 | | .068 | | .052 | 3.242 | - .030 | .061 | | .188 | | 27170 | 12410 |
| CM-343 | 3.437 | 3.331 | | .068 | | .053 | 3.301 | | .061 | | .188 | | 27660 | 12880 |
| CM-350 | 3.500 | 3.394 | | .068 | | .053 | 3.363 | | .061 | | .188 | | 28170 | 13110 |
| CM-354 | 3.543 | 3.433 | | .068 | | .055 | 3.402 | | .061 | | .198 | | 28520 | 13770 |
| CM-356 | 3.562 | 3.452 | | .068 | | .055 | 3.422 | | .061 | | .198 | | 28670 | 13850 |
| CM-362 | 3.625 | 3.515 | | .068 | | .055 | 3.483 | | .061 | | .198 | | 29180 | 14090 |
| CM-368 | 3.687 | 3.575 | | .068 | | .056 | 3.543 | | .061 | | .198 | | 29680 | 14600 |
| CM-374 | 3.740 | 3.628 | | .068 | | .056 | 3.597 | | .061 | | .198 | | 30100 | 14800 |
| CM-375 | 3.750 | 3.638 | | .068 | | .056 | 3.606 | | .061 | | .198 | | 30180 | 14840 |
| CM-381 | 3.812 | 3.700 | | .068 | | .056 | 3.668 | | .061 | + .003 | .198 | | 30680 | 15090 |
| CM-387 | 3.875 | 3.757 | | .068 | | .059 | 3.724 | | .061 | - .003 | .208 | | 31190 | 16160 |
| CM-393 | 3.938 | 3.820 | | .068 | | .059 | 3.784 | | .061 | | .208 | + .005 | 31700 | 16420 |
| CM-400 | 4.000 | 3.876 | + .006 | .068 | + .005 | .062 | 3.842 | | .061 | | .218 | - .005 | 32200 | 17530 |
| CM-406 | 4.063 | 3.939 | - .006 | .068 | - .000 | .062 | 3.906 | | .061 | | .218 | | 32700 | 17810 |
| CM-412 | 4.125 | 4.000 | | .068 | | .062 | 3.967 | | .061 | | .218 | | 33200 | 18080 |
| CM-413 | 4.134 | 4.010 | | .068 | | .062 | 3.975 | | .061 | | .218 | | 33270 | 18120 |
| CM-418 | 4.188 | 4.058 | | .068 | | .065 | 4.022 | + .000 | .061 | | .218 | | 33710 | 19240 |
| CM-425 | 4.250 | 4.120 | | .068 | | .065 | 4.084 | - .040 | .061 | | .228 | | 34210 | 19530 |
| CM-431 | 4.312 | 4.182 | | .068 | | .065 | 4.147 | | .061 | | .228 | | 34710 | 19810 |
| CM-433 | 4.331 | 4.200 | | .068 | | .065 | 4.164 | | .061 | | .228 | | 34860 | 19900 |
| CM-437 | 4.375 | 4.245 | | .068 | | .065 | 4.208 | | .061 | | .228 | | 35210 | 20100 |
| CM-443 | 4.437 | 4.307 | | .068 | | .065 | 4.271 | | .061 | | .228 | | 35710 | 20390 |
| CM-450 | 4.500 | 4.364 | | .068 | | .068 | 4.326 | | .061 | | .238 | | 36220 | 21630 |
| CM-456 | 4.562 | 4.422 | | .079 | | .070 | 4.384 | | .072 | | .250 | | 43340 | 22570 |
| CM-462 | 4.625 | 4.485 | | .079 | | .070 | 4.447 | | .072 | | .250 | | 43940 | 22890 |
| CM-468 | 4.687 | 4.547 | | .079 | | .070 | 4.508 | | .072 | | .250 | | 44530 | 23190 |
| CM-472 | 4.724 | 4.584 | | .079 | | .070 | 4.546 | | .072 | | .250 | | 44880 | 23370 |
| CM-475 | 4.750 | 4.610 | | .079 | | .070 | 4.571 | | .072 | + .004 | .250 | | 45130 | 23500 |
| CM-481 | 4.812 | 4.672 | | .079 | | .070 | 4.633 | | .072 | - .004 | .250 | | 45720 | 23810 |
| CM-487 | 4.875 | 4.735 | | .079 | | .070 | 4.695 | | .072 | | .250 | | 46310 | 24120 |
| CM-493 | 4.937 | 4.797 | | .079 | | .070 | 4.757 | | .072 | | .250 | | 46900 | 24430 |
| CM-500 | 5.000 | 4.856 | | .079 | | .072 | 4.816 | | .072 | | .250 | | 47500 | 25450 |
| CM-511 | 5.118 | 4.974 | | .079 | | .072 | 4.934 | | .072 | | .250 | | 48620 | 26050 |
| CM-512 | 5.125 | 4.981 | | .079 | | .072 | 4.939 | | .072 | | .250 | | 48690 | 26080 |



Free Diameter & Ring Measurements



Shaft Diameter & Groove Dimensions

| RING NO. | SHAFT DIAMETER | GROOVE SIZE | | | | | RING SIZE | | | | THRUST LOAD (lbs.) | | | |
|----------|----------------|-------------|--------|-------|--------|-------|---------------|--------|-----------|--------|--------------------|--------|-------------------------|---------------------------|
| | | DIAMETER | | WIDTH | | DEPTH | FREE DIAMETER | | THICKNESS | | SECTION | | RING Safety factor of 3 | GROOVE Safety factor of 2 |
| | | (In.) | Dg | Tol. | W | Tol. | d | Df | Tol. | T | Tol. | S | Tol. | |
| CM-525 | 5.250 | 5.107 | | .079 | | .072 | 5.064 | | .072 | | .250 | | 49880 | 26720 |
| CM-537 | 5.375 | 5.228 | | .079 | | .074 | 5.187 | | .072 | | .250 | | 51060 | 28120 |
| CM-550 | 5.500 | 5.353 | | .079 | | .074 | 5.308 | | .072 | | .250 | | 52250 | 28770 |
| CM-551 | 5.511 | 5.364 | + .007 | .079 | + .005 | .074 | 5.320 | | .072 | | .250 | | 52360 | 28830 |
| CM-562 | 5.625 | 5.478 | - .007 | .079 | - .005 | .074 | 5.433 | + .000 | .072 | | .250 | - .005 | 53440 | 29420 |
| CM-575 | 5.750 | 5.597 | | .079 | | .077 | 5.550 | - .050 | .072 | | .250 | | 54630 | 31300 |
| CM-587 | 5.875 | 5.722 | | .079 | | .077 | 5.674 | | .072 | | .250 | | 55810 | 31980 |
| CM-590 | 5.905 | 5.752 | | .079 | | .077 | 5.705 | | .072 | | .250 | | 56100 | 32140 |
| CM-600 | 6.000 | 5.847 | | .079 | | .077 | 5.798 | | .072 | | .250 | | 57000 | 32660 |
| CM-612 | 6.125 | 5.953 | | .094 | | .086 | 5.903 | | .086 | | .312 | | 69500 | 37230 |
| CM-625 | 6.250 | 6.078 | | .094 | | .086 | 6.026 | | .086 | | .312 | | 70920 | 37990 |
| CM-629 | 6.299 | 6.127 | | .094 | | .086 | 6.076 | | .086 | | .312 | | 71480 | 38290 |
| CM-637 | 6.375 | 6.203 | | .094 | | .086 | 6.152 | | .086 | | .312 | | 72340 | 38750 |
| CM-650 | 6.500 | 6.328 | | .094 | | .086 | 6.274 | | .086 | | .312 | | 73760 | 39510 |
| CM-662 | 6.625 | 6.443 | | .094 | | .091 | 6.390 | + .000 | .086 | | .312 | | 75180 | 42620 |
| CM-675 | 6.750 | 6.568 | | .094 | | .091 | 6.513 | - .060 | .086 | | .312 | | 76600 | 43420 |
| CM-687 | 6.875 | 6.693 | | .094 | | .091 | 6.638 | | .086 | | .312 | | 78010 | 44220 |
| CM-700 | 7.000 | 6.818 | | .094 | | .091 | 6.761 | | .086 | | .312 | | 79430 | 45030 |
| CM-712 | 7.125 | 6.933 | | .094 | | .096 | 6.877 | | .086 | + .004 | .312 | | 80850 | 48350 |
| CM-725 | 7.250 | 7.058 | | .094 | | .096 | 6.999 | | .086 | - .004 | .312 | | 82270 | 49200 |
| CM-737 | 7.375 | 7.183 | | .094 | | .096 | 7.125 | | .086 | | .312 | | 83690 | 50050 |
| CM-750 | 7.500 | 7.308 | + .008 | .094 | + .006 | .096 | 7.250 | | .086 | | .312 | + .006 | 85110 | 50890 |
| CM-762 | 7.625 | 7.423 | - .008 | .094 | - .006 | .101 | 7.363 | | .086 | | .312 | - .006 | 86520 | 54440 |
| CM-775 | 7.750 | 7.548 | | .094 | | .101 | 7.486 | | .086 | | .312 | | 87940 | 55330 |
| CM-787 | 7.875 | 7.673 | | .094 | | .101 | 7.611 | | .086 | | .312 | | 89360 | 56220 |
| CM-800 | 8.000 | 7.798 | | .094 | | .101 | 7.734 | | .086 | | .312 | | 90780 | 57110 |
| CM-825 | 8.250 | 8.038 | | .094 | | .106 | 7.972 | | .086 | | .375 | | 93620 | 61820 |
| CM-850 | 8.500 | 8.288 | | .094 | | .106 | 8.220 | + .000 | .086 | | .375 | | 96450 | 63690 |
| CM-875 | 8.750 | 8.528 | | .094 | | .111 | 8.459 | - .070 | .086 | | .375 | | 99290 | 68650 |
| CM-900 | 9.000 | 8.778 | | .094 | | .111 | 8.707 | | .086 | | .375 | | 102130 | 70620 |
| CM-925 | 9.250 | 9.018 | | .094 | | .116 | 8.945 | | .086 | | .375 | | 104960 | 75850 |
| CM-950 | 9.500 | 9.268 | | .094 | | .116 | 9.194 | | .086 | | .375 | | 107800 | 77900 |
| CM-975 | 9.750 | 9.508 | | .094 | | .121 | 9.432 | | .086 | | .375 | | 110640 | 83390 |
| CM-1000 | 10.000 | 9.758 | | .094 | | .121 | 9.680 | | .086 | | .375 | | 113470 | 85530 |
| CM-1025 | 10.250 | 9.998 | | .094 | | .126 | 9.918 | | .086 | | .375 | | 116310 | 91290 |
| CM-1050 | 10.500 | 10.248 | | .094 | | .126 | 10.166 | | .086 | | .375 | | 119150 | 93520 |
| CM-1075 | 10.750 | 10.488 | | .094 | | .131 | 10.405 | | .086 | | .375 | | 121990 | 99540 |
| CM-1100 | 11.000 | 10.738 | | .094 | | .131 | 10.653 | | .086 | | .375 | | 124820 | 101860 |