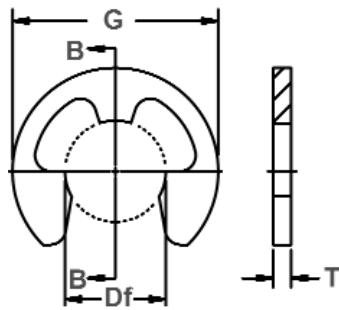




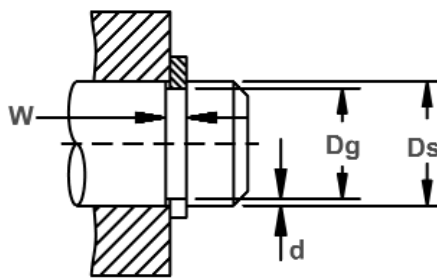
E Shaft Rings

Radially Assembled, External 'E'

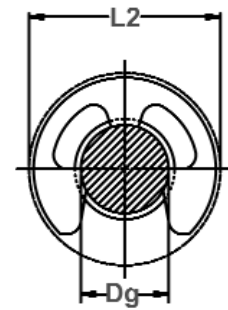
Perhaps the most popular and widely used radial retaining ring is the "E" (so named because it is shaped like the letter "E".) Three prongs make contact with the bottom of the groove and provide a shoulder for effective retention of assemblies.



Free Diameter & Ring Measurements
With Section B-B



Shaft Diameter &
Groove Dimensions



Clearance Diameter
Installed In Groove

| RING NO. | SHAFT DIAMETER | | | GROOVE SIZE | | | RING SIZE & WEIGHT | | | | | CLEARANCE DIA. | | | i THRUST LD. (lbs.) | | |
|----------|----------------|---------|-------|-------------|--------|-------|--------------------|---------------|-------|--------------|------|----------------------|------------------------|---------------------|----------------------|------|-------|
| | | | | DIAMETER | | WIDTH | DEPTH | FREE DIAMETER | | THICKNESS*** | | Weight Per 1000 pcs. | Free outside dia. REF. | Installed in groove | Sqr. corner abutment | | |
| | Ds DEC | Ds FRAC | Ds mm | Dg | Tol. | W | Tol. | d | Df | Tol. | T | Tol. | lbs. | G | L2 | Pr | Pg |
| **E-4 | .040 | - | 1.0 | .026 | | .012 | | .007 | .025 | | .010 | | .009 | .079 | .090 | 13 | 6 |
| E-6 | .062 | 1/16 | 1.6 | .052 | +.002 | .012 | +.002 | .005 | .051 | +.001 | .010 | ±.001 | .030 | .156 | .165 | 20 | 7 |
| SE-6 | .062 | 1/16 | 1.6 | .052 | | .012 | | .005 | .051 | | .010 | | .028 | .140 | .150 | 20 | 7 |
| YE-6 | .062 | 1/16 | 1.6 | .052 | | .023 | | .005 | .051 | | .020 | | .094 | .187 | .200 | 41 | 7 |
| SE-9 | .094 | 3/32 | 2.4 | .074 | -.000 | .020 | -.000 | .010 | .069 | +.002-.003 | .015 | | .10 | .230 | .245 | 46 | 20 |
| E-9 | .094 | 3/32 | 2.4 | .074 | | .020 | | .010 | .073 | | .015 | | .058 | .187 | .200 | 46 | 20 |
| SE-11 | .110 | 7/64 | 2.8 | .079 | *.0015 | .020 | | .015 | .076 | | .015 | | .31 | .375 | .390 | 61 | 40 |
| SE-12 | .125 | 1/8 | 3.2 | .095 | | .029 | | .015 | .094 | | .025 | | .12 | .214 | .225 | 110 | 45 |
| E-12 | .125 | 1/8 | 3.2 | .095 | +.002 | .020 | | .015 | .094 | | .015 | | .087 | .230 | .240 | 66 | 45 |
| SE-14 | .140 | 9/64 | 3.6 | .102 | | .020 | | .019 | .100 | | .015 | | .060 | .203 | .215 | 76 | 60 |
| YE-14 | .140 | 9/64 | 3.6 | .110 | +.002 | .020 | | .015 | .108 | | .015 | | .10 | .250 | .265 | 76 | 45 |
| E-14 | .140 | 9/64 | 3.6 | .105 | | .029 | | .017 | .102 | | .025 | | .21 | .270 | .285 | 173 | 60 |
| SE-15 | .156 | 5/32 | 4.0 | .118 | +.002 | .046 | | .019 | .116 | +.001 | .042 | | .76 | .375 | .390 | 300 | 70 |
| E-15 | .156 | 5/32 | 4.0 | .116 | | .029 | | .020 | .114 | | .025 | | .21 | .282 | .295 | 178 | 75 |
| SE-17 | .172 | 11/64 | 4.4 | .127 | -.000 | .029 | | .022 | .125 | | .025 | | .24 | .312 | .325 | 183 | 90 |
| SE-18 | .188 | 3/16 | 4.8 | .125 | | .029 | | .031 | .122 | | .025 | | .45 | .375 | .39 | 203 | 135 |
| YE-18 | .188 | 3/16 | 4.8 | .147 | *.002 | .029 | | .020 | .145 | | .025 | ±.002 | .70 | .470 | .485 | 193 | 90 |
| ZE-18 | .188 | 3/16 | 4.8 | .125 | | .029 | | .031 | .122 | | .025 | | 1.05 | .550 | .565 | 203 | 135 |
| E-18 | .188 | 3/16 | 4.8 | .147 | +.003 | .029 | | .020 | .145 | | .025 | | .29 | .335 | .35 | 193 | 90 |
| SE-21 | .219 | 7/32 | 5.6 | .188 | | .029 | | .015 | .185 | | .025 | | .47 | .437 | .45 | 228 | 75 |
| E-25 | .250 | 1/4 | 6.3 | .210 | +.003 | .029 | | .020 | .207 | | .025 | | .76 | .527 | .54 | 259 | 115 |
| SE-31 | .312 | 5/16 | 7.9 | .250 | | .029 | | .031 | .243 | | .025 | | .57 | .500 | .52 | 330 | 225 |
| YE-31 | .312 | 5/16 | 7.9 | .250 | -.000 | .029 | | .031 | .243 | +.002 | .025 | | 1.220 | .670 | .685 | 325 | 220 |
| SE-37 | .375 | 3/8 | 9.5 | .306 | | .039 | | .034 | .303 | | .035 | | 1.050 | .567 | .587 | 680 | 300 |
| E-37 | .375 | 3/8 | 9.5 | .303 | +.003 | .039 | | .036 | .300 | -.004 | .035 | | 1.5 | .660 | .68 | 700 | 315 |
| E-43 | .438 | 7/16 | 11.1 | .343 | | .039 | | .047 | .337 | | .035 | | 1.5 | .687 | .71 | 842 | 480 |
| SE-43 | .438 | 7/16 | 11.1 | .380 | *.004 | .039 | | .029 | .375 | | .035 | | 1.0 | .600 | .62 | 812 | 280 |
| E-50 | .500 | 1/2 | 12.7 | .396 | | .046 | | .052 | .392 | | .042 | | 2.5 | .800 | .82 | 1127 | 600 |
| E-62 | .625 | 5/8 | 15.9 | .485 | +.003 | .046 | | .070 | .480 | | .042 | | 3.2 | .940 | .96 | 1441 | 1050 |
| SE-74 | .750 | 3/4 | 19.0 | .625 | | .056 | | .062 | .616 | | .050 | | 4.3 | 1.000 | 1.02 | 1979 | 1100 |
| E-75 | .750 | 3/4 | 19.0 | .580 | -.005 | .056 | | .085 | .574 | | .050 | | 5.8 | 1.120 | 1.14 | 2030 | 1500 |
| E-87 | .875 | 7/8 | 22.2 | .675 | | .056 | | .100 | .668 | | .050 | | 7.6 | 1.300 | 1.32 | 2385 | 2050 |
| SE-98 | .984 | 63/64 | 25.0 | .835 | +.003 | .056 | | .074 | .822 | | .050 | | 9.2 | 1.500 | 1.53 | 2639 | 1750 |
| SE-98 | 1.000 | 1 | 25.4 | .835 | | .056 | | .082 | .822 | | .050 | | 9.2 | 1.500 | 1.53 | 2690 | 1900 |
| SE-118 | 1.188 | 1-3/16 | 30.2 | 1.079 | +.005 | .068 | +.004 | .054 | 1.066 | +.006 | .062 | ±.003 | 11.3 | 1.626 | 1.67 | 3501 | 1500 |
| SE-137 | 1.375 | 1-3/8 | 34.9 | 1.230 | | -.000 | | .068 | -.000 | | .072 | | 1.213 | -.010 | .062 | 15.4 | 1.875 |

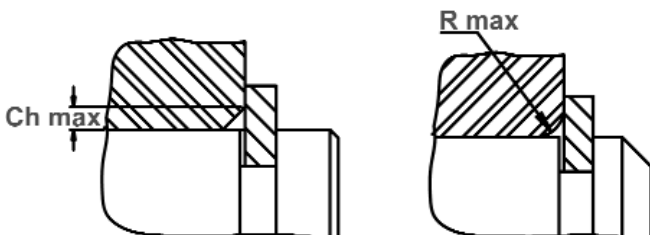
LISTED GROOVE WIDTH (W) MINIMUM.

* F.I.M. (FULL INDICATOR MOVEMENT)- MAXIMUM ALLOWABLE DEVIATION OF CONCENTRICITY BETWEEN GROOVE AND SHAFT.

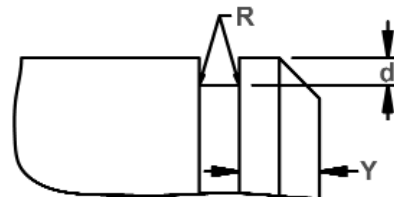
** AVAILABLE IN BERYLLIUM COPPER ONLY.

i BASED ON GROOVES MADE OF COLD ROLLED STEEL. FOR AN EXPLANATION OF FORMULAS USED TO DERIVE THRUST LOAD AND OTHER PERFORMANCE DATA CONTACT THE ROTOR CLIP ENGINEERING DEPARTMENT.

*** FOR PLATED RINGS, ADD .002" TO THE LISTED MAXIMUM THICKNESS. MAXIMUM THICKNESS WILL BE A MINIMUM OF .0002" LESS THAN THE LISTED GROOVE WIDTH (W) MINIMUM.



Maximum Corner Radius & Chamfer



Exploded Groove Profile & Edge Margin (Y)
Maximum bottom radii (R), Sharp corners
for rings 4 thru 6; .005 For sizes SE9 thru 25; .010
For sizes SE-31 thru SE-43; .015 For sizes 50 thru SE-137

| RING NO. | ALLOWABLE CORNER RADII & CHAMFERS | | MAX LOAD w/ R max or Ch max (in lbs.) | EDGE MARGIN | R.P.M. LIMITS Standard material |
|----------|-----------------------------------|--------|---------------------------------------|-------------|---------------------------------|
| | R max | Ch max | | | |
| **E-4 | .015 | .010 | 13 | .014 | 40000 |
| E-6 | .030 | .020 | 20 | .010 | 40000 |
| SE-6 | .030 | .020 | 20 | .010 | 40000 |
| YE-6 | .035 | .025 | 40 | .010 | 40000 |
| SE-9 | .053 | .040 | 45 | .020 | 36000 |
| E-9 | .040 | .030 | 45 | .020 | 36000 |
| SE-11 | .080 | .060 | 60 | .030 | 35000 |
| SE-12 | .040 | .030 | 108 | .030 | 35000 |
| E-12 | .040 | .030 | 65 | .030 | 35000 |
| SE-14 | .029 | .022 | 75 | .038 | 32000 |
| YE-14 | .040 | .030 | 75 | .030 | 32000 |
| E-14 | .060 | .045 | 170 | .034 | 32000 |
| SE-15 | .080 | .060 | 250 | .038 | 31000 |
| E-15 | .060 | .045 | 175 | .040 | 31000 |
| SE-17 | .060 | .045 | 180 | .044 | 30000 |
| SE-18 | .060 | .045 | 200 | .062 | 30000 |
| YE-18 | .060 | .045 | 190 | .040 | 25000 |
| ZE-18 | .060 | .045 | 200 | .062 | 18000 |
| E-18 | .060 | .045 | 190 | .040 | 30000 |
| SE-21 | .060 | .045 | 225 | .030 | 26000 |
| E-25 | .060 | .045 | 255 | .040 | 25000 |
| SE-31 | .060 | .045 | 325 | .062 | 22000 |
| YE-31 | .060 | .045 | 320 | .062 | 15000 |
| SE-37 | .060 | .045 | 680 | .068 | 20000 |
| E-37 | .065 | .050 | 690 | .072 | 20000 |
| E-43 | .065 | .050 | 830 | .094 | 16500 |
| SE-43 | .050 | .035 | 800 | .058 | 16500 |
| E-50 | .080 | .060 | 1110 | .104 | 14000 |
| E-62 | .080 | .060 | 1420 | .140 | 12000 |
| SE-74 | .057 | .042 | 1900 | .124 | 11000 |
| E-75 | .085 | .065 | 2000 | .170 | 10500 |
| E-87 | .085 | .065 | 2350 | .200 | 9000 |
| SE-98 | .085 | .065 | 2700 | .148 | 6500 |
| SE-98 | .077 | .057 | 2700 | .164 | 6500 |
| SE-118 | .090 | .070 | 3450 | .108 | 5500 |
| SE-137 | .090 | .070 | 4100 | .144 | 4000 |

LARGER SIZES MAY BE AVAILABLE UPON REQUEST.

HARDNESS RANGES: STAINLESS STEEL RINGS (PH 15-7MO)

| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
|-----------|------------|-------|-------------------|
| E All | E6-SE6 | 15N | 82.5-86* |
| | YE6-YE14 | 15N | 82.5-86 |
| | E14-SE31 | 30N | 63-69.5 |
| | E37+ | C | 44-51 |

HARDNESS RANGES: BERYLLIUM COPPER RINGS

| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
|-----------|------------|-------|-------------------|
| E All | E4-SE6 | 15N | 79-82* |
| | YE6-YE14 | 15N | 79-82 |
| | E14-SE31 | 30N | 56.5-62 |
| | E37+ | C | 37-43 |

HARDNESS RANGES: CARBON STEEL RINGS (SAE 1060-1090)

| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
|-----------|------------|-------|-------------------|
| E All | E6-SE6 | 15N | 84.5-87* |
| | YE6-YE14 | 15N | 84.5-87 |
| | E14-SE31 | 30N | 66.5-71 |
| | E37+ | C | 47-52 |

*HARDNESS CAN NOT BE CHECKED WITH ANY DEGREE OF ACCURACY DIRECTLY ON THESE RINGS.