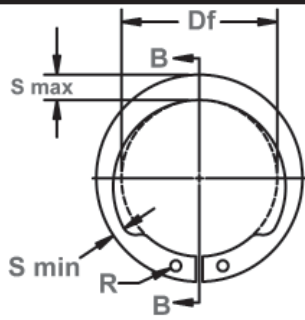




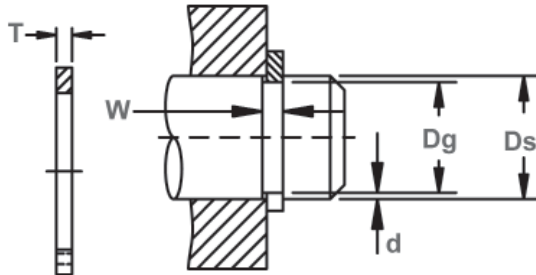
SHI Shaft Rings

Axially Assembled, External Inverted

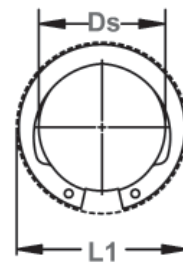
Functions like an SH ring on a shaft, only the lugs are "reversed." This version reduces the distance the lugs of the standard SH extend beyond the circumference of the shaft. The shaft can then be used in an application where clearance is minimal.



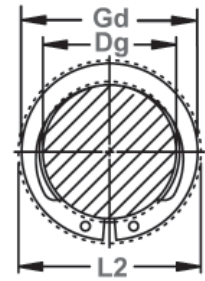
Free Diameter & Ring Measurements with Section B-B



Shaft Diameter & Groove Dimensions



Clearance Diameter Expanded Over Shaft



Clearance Diameter & Gaging Diameter Released in Groove

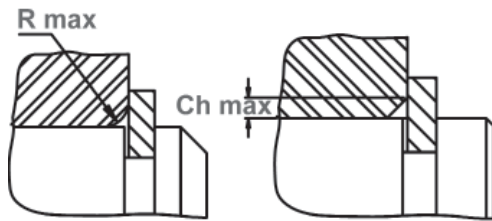
| RING NO. | SHAFT DIAMETER | | | GROOVE SIZE | | | | RING SIZE & WEIGHT | | | | CLEAR. DIA. | | | † THRUST LD. (lbs.) | | |
|----------|----------------|----------|-------|-------------|-------|-------|-------|--------------------|---------------|-------|--------------|-------------|----------------------|---------------------|---------------------|-------------------------|---------------------------|
| | | | | DIAMETER | | WIDTH | | DEPTH | FREE DIAMETER | | THICKNESS*** | | Weight Per 1000 Pcs. | Expanded over shaft | Re-leased in groove | Ring Safety factor of 4 | Groove Safety factor of 2 |
| | Ds DEC | Ds FRACT | Ds mm | Dg | Tol. | W | Tol. | d | Df | Tol. | T | Tol. | | | | | |
| SHI-50 | .500 | 1/2 | 12.7 | .468 | ±.002 | .039 | | .016 | .461 | | .035 | | 1.0 | .67 | .645 | 1117 | 280 |
| SHI-56 | .562 | 9/16 | 14.3 | .530 | .004* | .039 | | .016 | .521 | | .035 | | 1.4 | .75 | .72 | 1269 | 320 |
| SHI-59 | .594 | 19/32 | 15.1 | .559 | | .039 | | .017 | .550 | | .035 | | 1.6 | .79 | .76 | 1320 | 370 |
| SHI-62 | .625 | 5/8 | 15.9 | .588 | | .039 | | .018 | .579 | | .035 | | 1.6 | .83 | .80 | 1421 | 400 |
| SHI-68 | .688 | 11/16 | 17.5 | .646 | | .046 | | .021 | .635 | | .042 | | 2.5 | .91 | .87 | 2335 | 500 |
| SHI-75 | .750 | 3/4 | 19.0 | .704 | ±.003 | .046 | +.003 | .023 | .693 | +.005 | .042 | | 2.8 | .99 | .95 | 2538 | 600 |
| SHI-78 | .781 | 25/32 | 19.8 | .733 | .004* | .046 | -.000 | .024 | .722 | -.010 | .042 | | 3.1 | 1.04 | 1.00 | 2639 | 650 |
| SHI-81 | .812 | 13/16 | 20.6 | .762 | | .046 | | .025 | .751 | | .042 | | 3.3 | 1.08 | 1.03 | 2690 | 700 |
| SHI-87 | .875 | 7/8 | 22.2 | .821 | | .046 | | .027 | .810 | | .042 | | 3.8 | 1.15 | 1.10 | 2893 | 850 |
| SHI-93 | .938 | 15/16 | 23.8 | .882 | | .046 | | .028 | .867 | | .042 | | 4.5 | 1.23 | 1.18 | 3147 | 900 |
| SHI-100 | .984 | 63/64 | 25.0 | .926 | | .046 | | .029 | .925 | | .042 | ±.002 | 4.8 | 1.30 | 1.25 | 3350 | 1000 |
| SHI-100 | 1.000 | 1 | 25.4 | .940 | | .046 | | .030 | .925 | | .042 | | 4.8 | 1.31 | 1.26 | 3350 | 1050 |
| SHI-106 | 1.062 | 1-1/16 | 27.0 | .998 | | .056 | | .032 | .982 | | .050 | | 6.2 | 1.38 | 1.32 | 4212 | 1200 |
| SHI-112 | 1.125 | 1-1/8 | 28.6 | 1.059 | | .056 | | .033 | 1.041 | | .050 | | 6.7 | 1.45 | 1.39 | 4466 | 1300 |
| SHI-118 | 1.188 | 1-3/16 | 30.2 | 1.118 | | .056 | | .035 | 1.098 | +.010 | .050 | | 7.2 | 1.52 | 1.46 | 4720 | 1450 |
| SHI-125 | 1.250 | 1-1/4 | 31.7 | 1.176 | ±.004 | .056 | +.004 | .037 | 1.156 | -.015 | .050 | | 7.6 | 1.59 | 1.52 | 4974 | 1600 |
| SHI-131 | 1.312 | 1-5/16 | 33.3 | 1.232 | .005* | .056 | -.000 | .040 | 1.214 | | .050 | | 8.2 | 1.66 | 1.58 | 5227 | 1850 |
| SHI-137 | 1.375 | 1-3/8 | 34.9 | 1.291 | | .056 | | .042 | 1.272 | | .050 | | 8.4 | 1.73 | 1.65 | 5481 | 2050 |
| SHI-143 | 1.438 | 1-7/16 | 36.5 | 1.350 | | .056 | | .044 | 1.333 | | .050 | | 9.1 | 1.80 | 1.72 | 5735 | 2200 |
| SHI-150 | 1.500 | 1-1/2 | 38.1 | 1.406 | | .056 | | .047 | 1.387 | | .050 | | 9.8 | 1.87 | 1.78 | 5938 | 2500 |
| SHI-156 | 1.562 | 1-9/16 | 39.7 | 1.468 | | .068 | | .047 | 1.446 | | .062 | | 12.9 | 1.95 | 1.86 | 7714 | 2600 |
| SHI-162 | 1.625 | 1-5/8 | 41.3 | 1.529 | | .068 | | .048 | 1.503 | | .062 | | 13.4 | 2.02 | 1.93 | 8019 | 2750 |
| SHI-177 | 1.750 | 1-3/4 | 44.4 | 1.650 | | .068 | | .050 | 1.637 | | .062 | | 16.1 | 2.18 | 2.08 | 8628 | 3100 |
| SHI-177 | 1.772 | - | 45.0 | 1.669 | ±.005 | .068 | | .051 | 1.637 | +.013 | .062 | | 16.1 | 2.20 | 2.10 | 8628 | 3200 |
| SHI-181 | 1.812 | 1-13/16 | 46.0 | 1.708 | .005* | .068 | | .052 | 1.675 | -.020 | .062 | | 17.3 | 2.24 | 2.14 | 8983 | 3300 |
| SHI-196 | 1.969 | 1-31/32 | 50.0 | 1.857 | | .068 | | .056 | 1.819 | | .062 | | 20.5 | 2.43 | 2.32 | 9693 | 3900 |
| SHI-200 | 2.000 | 2 | 50.8 | 1.886 | | .068 | | .057 | 1.850 | | .062 | | 20.7 | 2.47 | 2.36 | 9896 | 4000 |
| SHI-215 | 2.125 | 2-1/8 | 54.0 | 2.003 | | .086 | | .061 | 1.993 | | .078 | ±.003 | 30.0 | 2.62 | 2.50 | 13195 | 4550 |
| SHI-215 | 2.156 | 2-5/32 | 54.8 | 2.032 | | .086 | | .062 | 1.993 | +.015 | .078 | | 30.0 | 2.65 | 2.53 | 13195 | 4700 |
| SHI-250 | 2.500 | 2-1/2 | 63.5 | 2.360 | | .086 | | .070 | 2.313 | -.025 | .078 | | 43.5 | 3.05 | 2.92 | 15530 | 6200 |
| SHI-275 | 2.750 | 2-3/4 | 69.8 | 2.602 | ±.006 | .103 | +.005 | .074 | 2.543 | | .093 | | 57.9 | 3.34 | 3.20 | 20402 | 7200 |
| SHI-287 | 2.875 | 2-7/8 | 73.0 | 2.721 | .006* | .103 | -.000 | .077 | 2.659 | | .093 | | 64.5 | 3.49 | 3.34 | 21315 | 7800 |
| SHI-315 | 3.156 | 3-5/32 | 80.2 | 2.986 | | .103 | | .085 | 2.920 | +.020 | .093 | | 77.0 | 3.82 | 3.66 | 23447 | 9400 |
| SHI-325 | 3.250 | 3-1/4 | 82.5 | 3.076 | | .103 | | .087 | 3.006 | -.030 | .093 | | 77.5 | 3.93 | 3.76 | 24056 | 10000 |
| SHI-350 | 3.500 | 3-1/2 | 88.9 | 3.316 | | .120 | | .092 | 3.237 | | .109 | | 107.0 | 4.22 | 4.04 | 30349 | 11500 |
| SHI-393 | 3.938 | 3-15/16 | 100.0 | 3.734 | | .120 | | .102 | 3.642 | | .109 | | 123.0 | 4.71 | 4.51 | 34206 | 14000 |

* F.I.M. (FULL INDICATOR MOVEMENT)-MAXIMUM ALLOWABLE DEVIATION OF CONCENTRICITY BETWEEN GROOVE AND SHAFT.
 † BASED ON HOUSINGS/SHAFTS 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 RING THICKNESS. MAXIMUM RING THICKNESS WILL BE A MINIMUM OF .0002" LESS THAN THE LISTED GROOVE WIDTH (W) MINIMUM.

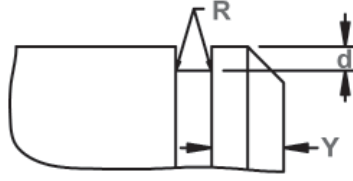
Note: Specifications listed within the catalog tables reflect Rotor Clip's standard commercial production dimensions. Published retaining ring standards including Military (MIL-DTL-21248D) / ASME / NAS / ANSI may require parts with alternative geometry. Please contact Rotor Clip Technical Sales Department to clarify conformance to specific requirements. (Tech@rotorclip.com or +1-732-469-7333.)

| HARDNESS RANGES: STAINLESS STEEL RINGS (PH 15-7MO) | | | |
|--|------------|-------|-------------------|
| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
| SHI | 50-81 | 30N | 63-69.5 |
| | 87+ | C | 44-51 |





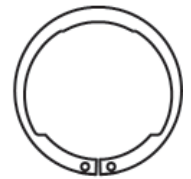
Maximum Corner Radius & Chamfer



Exploded Groove Profile & Edge Margin (Y)
Maximum bottom radii (R), .005 for ring sizes -50 thru -100; .010 for ring sizes -106 thru -393



Measuring Free Diameter (Df) SHI Series
 $Df = D1 - 2(S \max)$



Alternate Design
Manufacturer's Option

| RING NO. | MAXIMUM SECTION (Including Lug) | | MINIMUM SECTION | | HOLE DIAMETER | | GAGING DIAMETER | ALLOWABLE CORNER RADII & CHAMFERS | | | MAX. LOAD w/R max or Ch max (in lbs.) | EDGE MARGIN | | R.P.M. LIMITS Standard material |
|----------|---------------------------------|-------|-----------------|-------|---------------|----------------|-----------------|-----------------------------------|-------|--------|---------------------------------------|-------------|-------|---------------------------------|
| | S max | Tol. | S min | Tol. | R | Tol. | | Gd Max | R max | Ch max | | Pr | Y | |
| SHI-50 | .080 | ±.004 | .041 | ±.004 | .042 | +.010 -.002 | .64 | .051 | .032 | 680 | .048 | 40000 | | |
| SHI-56 | .088 | | .043 | | .042 | | .715 | .057 | .036 | 680 | .048 | 35000 | | |
| SHI-59 | .092 | | .046 | | .042 | | .75 | .059 | .037 | 680 | .052 | 32000 | | |
| SHI-62 | .096 | | .048 | | .042 | | .79 | .062 | .039 | 680 | .055 | 30000 | | |
| SHI-68 | .104 | ±.005 | .052 | ±.005 | .042 | | .87 | .066 | .042 | 1000 | .063 | 28000 | | |
| SHI-75 | .112 | | .056 | | .042 | | .945 | .071 | .045 | 1000 | .069 | 26500 | | |
| SHI-78 | .116 | | .057 | | .042 | | .98 | .073 | .046 | 1000 | .072 | 25500 | | |
| SHI-81 | .120 | | .060 | | .050 | | 1.02 | .076 | .048 | 1000 | .075 | 24500 | | |
| SHI-87 | .128 | | .064 | | .050 | | 1.095 | .080 | .051 | 1000 | .081 | 23000 | | |
| SHI-93 | .136 | | .068 | | .050 | | 1.17 | .086 | .054 | 1000 | .084 | 21500 | | |
| SHI-100 | .144 | | .072 | | .050 | 1.24 | .091 | .057 | 1000 | .087 | 20000 | | | |
| SHI-100 | .144 | | .072 | | .050 | 1.25 | .091 | .057 | 1000 | .090 | 20000 | | | |
| SHI-106 | .147 | | ±.006 | | .073 | ±.006 | .078 | .131 | .092 | .058 | 1460 | .096 | 19000 | |
| SHI-112 | .150 | | | | .075 | | .078 | 1.38 | .093 | .059 | 1460 | .099 | 18800 | |
| SHI-118 | .153 | .076 | | .078 | 1.45 | | .094 | .059 | 1460 | .105 | 18000 | | | |
| SHI-125 | .157 | .079 | | .078 | 1.52 | | .096 | .060 | 1460 | .111 | 17000 | | | |
| SHI-131 | .161 | .080 | | .078 | 1.58 | | .097 | .061 | 1460 | .120 | 16500 | | | |
| SHI-137 | .165 | .082 | | .078 | 1.65 | | .098 | .061 | 1460 | .126 | 16000 | | | |
| SHI-143 | .169 | .085 | | .078 | 1.715 | | .100 | .063 | 1460 | .132 | 15000 | | | |
| SHI-150 | .173 | .086 | | .078 | 1.775 | | .100 | .063 | 1460 | .141 | 14800 | | | |
| SHI-156 | .178 | .089 | | .078 | 1.85 | | .104 | .066 | 2250 | .141 | 14000 | | | |
| SHI-162 | .183 | .092 | | .078 | 1.92 | | .108 | .067 | 2250 | .144 | 13200 | | | |
| SHI-177 | .196 | .098 | .078 | 2.07 | .116 | .073 | 2250 | .150 | 11700 | | | | | |
| SHI-177 | .196 | .098 | .078 | 2.09 | .116 | .073 | 2250 | .153 | 11700 | | | | | |
| SHI-181 | .199 | .100 | .078 | 2.13 | .117 | .074 | 2250 | .156 | 11500 | | | | | |
| SHI-196 | .212 | .106 | .078 | 2.31 | .124 | .078 | 2250 | .168 | 10500 | | | | | |
| SHI-200 | .216 | .108 | .078 | 2.35 | .127 | .080 | 2250 | .171 | 10000 | | | | | |
| SHI-215 | .229 | ±.007 | .117 | ±.007 | .120 | 2.49 | .133 | .084 | 3750 | .183 | 9400 | | | |
| SHI-215 | .229 | | .117 | | .120 | 2.52 | .133 | .084 | 3750 | .186 | 9400 | | | |
| SHI-250 | .250 | | .130 | | .120 | 2.91 | .151 | .095 | 3750 | .210 | 8400 | | | |
| SHI-275 | .280 | | .140 | | .120 | 3.19 | .165 | .103 | 5500 | .222 | 7600 | | | |
| SHI-287 | .290 | | .145 | | .120 | 3.33 | .170 | .107 | 5500 | .231 | 7300 | | | |
| SHI-315 | .316 | | .159 | | .120 | 3.65 | .185 | .116 | 5500 | .255 | 6500 | | | |
| SHI-325 | .324 | | ±.008 | | .162 | ±.008 | .120 | 3.75 | .190 | .118 | 5500 | .261 | 6400 | |
| SHI-350 | .345 | | | | .173 | | .125 | 4.03 | .202 | .127 | 7850 | .276 | 5900 | |
| SHI-393 | .368 | | | | .183 | | .125 | 4.50 | .212 | .133 | 7850 | .306 | 5200 | |

LARGER SIZES MAY BE AVAILABLE UPON REQUEST.

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

| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
|-----------|------------|-------|-------------------|
| SHI | 50-81 | 30N | 66-71 |
| | 87-102 | C | 47-53 |
| | 106-343 | C | 47-52 |
| | 350+ | C | 45-50 |

HARDNESS RANGES: BERYLLIUM COPPER RINGS

| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
|-----------|------------|-------|-------------------|
| SHI | 50-81 | 30N | 56.5-62 |
| | 87+ | C | 37-43 |

