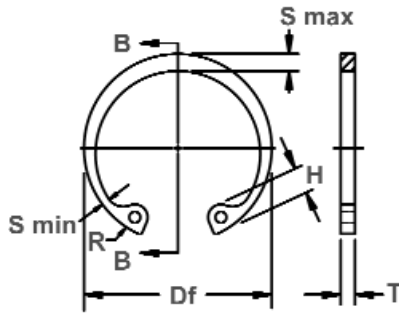


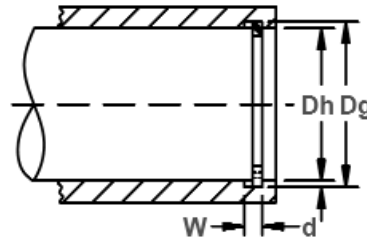
MHO Housing Rings

Axially Assembled, Internal, ANSI Metric

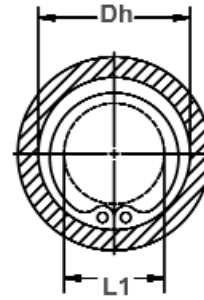
Once installed in the groove of a housing/bore, the portion of the ring protruding from the groove (also called a "shoulder") holds an assembly in place.



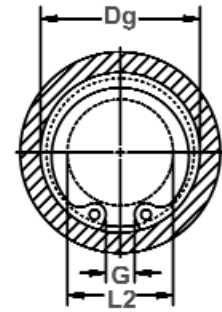
Free Diameter & Ring Measurements With Section B-B



Housing Diameter & Groove Dimensions



Clearance Diameter Compressed In Housing



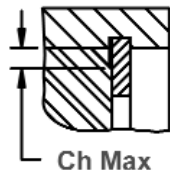
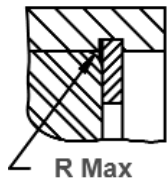
Clearance Diameter & Gap Width Released In Groove

| RING NO. | HOUSING DIAMETER | | GROOVE SIZE | | | | | RING SIZE & WEIGHT | | | | CLEARANCE DIA. | | † THRUST LD (kN) Sqr. corner abutment | | | |
|----------|------------------|---------|-------------|-------|---------|-------|---------------|--------------------|-------------------|-----------------------|--------------------|---------------------------|-----------------------------|--|------|------|------|
| | | | DIAMETER | | WIDTH | DEPTH | FREE DIAMETER | THICKNESS*** | Wt. Per 1000 pcs. | Compressed in housing | Released in Groove | Ring (Safety Factor of 4) | Groove (Safety Factor of 2) | | | | |
| | Ds mm | Ds INCH | Dg | tol | F.I.M.* | W | tol | d | Df | tol | T | tol | kg | L1 | L2 | Pr | Pg |
| MHO-8 | 8 | 0.315 | 8.40 | +0.06 | 0.03 | 0.50 | +0.10 | 0.20 | 8.80 | | 0.4 | | 0.05 | 4.4 | 4.8 | 2.4 | 1.0 |
| MHO-9 | 9 | 0.354 | 9.45 | | 0.03 | 0.70 | | 0.23 | 10.00 | | 0.6 | | 0.11 | 4.6 | 5.0 | 4.4 | 1.2 |
| MHO-10 | 10 | 0.393 | 10.50 | | 0.03 | 0.70 | | 0.25 | 11.10 | | 0.6 | | 0.14 | 5.5 | 6.0 | 4.9 | 1.5 |
| MHO-11 | 11 | 0.433 | 11.60 | | 0.05 | 0.70 | | 0.30 | 12.20 | | 0.6 | | 0.17 | 5.7 | 6.3 | 5.4 | 2.0 |
| MHO-12 | 12 | 0.472 | 12.65 | | 0.05 | 0.70 | | 0.33 | 13.30 | | 0.6 | | 0.19 | 6.7 | 7.3 | 5.8 | 2.4 |
| MHO-13 | 13 | 0.512 | 13.70 | | 0.05 | 1.00 | | 0.35 | 14.25 | +0.25 | 0.9 | | 0.35 | 6.8 | 7.5 | 8.9 | 2.6 |
| MHO-14 | 14 | 0.551 | 14.80 | +0.10 | 0.05 | 1.00 | | 0.40 | 15.45 | -0.13 | 0.9 | | 0.39 | 6.9 | 7.7 | 9.7 | 3.2 |
| MHO-15 | 15 | 0.591 | 15.85 | | 0.05 | 1.00 | | 0.43 | 16.60 | | 0.9 | | 0.42 | 7.9 | 8.7 | 10.4 | 3.7 |
| MHO-16 | 16 | 0.630 | 16.90 | | 0.10 | 1.00 | | 0.45 | 17.70 | | 0.9 | | 0.47 | 8.8 | 9.7 | 11.0 | 4.2 |
| MHO-17 | 17 | 0.669 | 18.00 | | 0.10 | 1.00 | | 0.50 | 18.90 | | 0.9 | | 0.52 | 9.8 | 10.8 | 11.7 | 4.9 |
| MHO-18 | 18 | 0.708 | 19.05 | | 0.10 | 1.00 | | 0.53 | 20.05 | | 0.9 | | 0.58 | 10.3 | 11.3 | 12.3 | 5.5 |
| MHO-19 | 19 | 0.748 | 20.10 | | 0.10 | 1.00 | | 0.55 | 21.10 | | 0.9 | | 0.59 | 11.4 | 12.5 | 13.1 | 6.0 |
| MHO-20 | 20 | 0.787 | 21.15 | | 0.10 | 1.00 | | 0.57 | 22.25 | | 0.9 | | 0.70 | 11.6 | 12.7 | 13.7 | 6.6 |
| MHO-21 | 21 | 0.826 | 22.20 | | 0.10 | 1.00 | +0.15 | 0.60 | 23.30 | | 0.9 | ±0.06 | 0.82 | 12.6 | 13.8 | 14.5 | 7.3 |
| MHO-22 | 22 | 0.866 | 23.30 | | 0.10 | 1.20 | | 0.65 | 24.40 | | 1.1 | | 0.90 | 13.5 | 14.8 | 22.5 | 8.3 |
| MHO-23 | 23 | 0.905 | 24.35 | +0.15 | 0.10 | 1.20 | | 0.67 | 25.45 | +0.40 | 1.1 | | 1.00 | 14.5 | 15.9 | 23.5 | 8.9 |
| MHO-24 | 24 | 0.945 | 25.40 | | 0.10 | 1.20 | | 0.70 | 26.55 | -0.25 | 1.1 | | 1.09 | 15.5 | 16.9 | 24.8 | 9.7 |
| MHO-25 | 25 | 0.984 | 26.60 | | 0.10 | 1.20 | | 0.80 | 27.75 | | 1.1 | | 1.26 | 16.5 | 18.1 | 25.7 | 11.6 |
| MHO-26 | 26 | 1.023 | 27.70 | | 0.15 | 1.20 | | 0.85 | 28.85 | | 1.1 | | 1.3 | 17.5 | 19.2 | 26.8 | 12.7 |
| MHO-27 | 27 | 1.063 | 28.80 | | 0.15 | 1.40 | | 0.90 | 29.95 | | 1.3 | | 1.7 | 17.4 | 19.2 | 33.0 | 14.0 |
| MHO-28 | 28 | 1.102 | 29.80 | | 0.15 | 1.40 | | 0.90 | 31.10 | | 1.3 | | 1.8 | 18.2 | 20.0 | 34.0 | 14.6 |
| MHO-30 | 30 | 1.181 | 31.90 | | 0.15 | 1.40 | | 0.95 | 33.40 | | 1.3 | | 2.0 | 20.0 | 21.9 | 37.0 | 16.5 |
| MHO-32 | 32 | 1.260 | 33.90 | | 0.15 | 1.40 | | 0.95 | 35.35 | +0.65 | 1.3 | | 2.2 | 22.0 | 23.9 | 39.0 | 17.6 |
| MHO-34 | 34 | 1.339 | 36.10 | | 0.15 | 1.40 | | 1.05 | 37.75 | -0.50 | 1.3 | | 2.3 | 24.0 | 26.1 | 42.0 | 20.6 |
| MHO-35 | 35 | 1.378 | 37.20 | +0.20 | 0.15 | 1.40 | | 1.10 | 38.75 | | 1.3 | | 2.3 | 25.0 | 27.2 | 43.0 | 22.3 |
| MHO-36 | 36 | 1.417 | 38.30 | | 0.15 | 1.40 | | 1.15 | 40.00 | | 1.3 | | 2.6 | 26.0 | 28.3 | 44.0 | 23.9 |
| MHO-37 | 37 | 1.457 | 39.30 | | 0.15 | 1.40 | | 1.15 | 41.05 | | 1.3 | | 2.9 | 27.0 | 29.3 | 45.0 | 24.6 |
| MHO-38 | 38 | 1.496 | 40.40 | | 0.15 | 1.40 | | 1.20 | 42.15 | | 1.3 | | 3.0 | 28.0 | 30.4 | 46.0 | 26.4 |

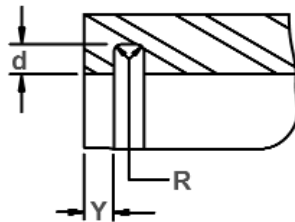
* F.I.M. (FULL INDICATOR MOVEMENT)- MAXIMUM ALLOWABLE DEVIATION OF CONCENTRICITY BETWEEN GROOVE & HOUSING.

† 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.

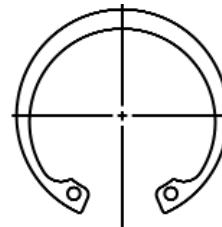
***FOR PLATED RINGS ADD 0.05 TO THE LISTED MAXIMUM THICKNESS. MAXIMUM THICKNESS WILL BE A MINIMUM OF 0.005 LESS THAN THE LISTED GROOVE WIDTH (W) MINIMUM.



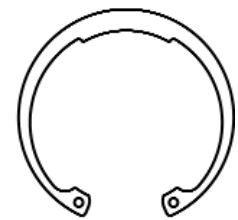
Allowable Corner Radius & Chamfer



Exploded Groove Profile & Edge Margin (Y)
 Maximum bottom radii (R), 0.10 for ring sizes
 -8 thru -17; 0.2 for ring sizes -18 thru -30;
 0.3 for ring sizes -32 thru -55
 0.4 for ring sizes -56 thru -250



Alternate Lug Design
 For Larger Sizes
 (Manufacturer's Option)



Alternate Design
 (Manufacturer's Option)

| RING NO. | LUG HEIGHT | MAXIMUM SECTION | MINIMUM SECTION | HOLE DIAMETER | GAP WIDTH Ring in Groove | ALLOWABLE CORNER RADII & CHAMFERS | | MAX. LOAD w/ R max or Ch max | EDGE MARGIN |
|----------|------------|-----------------|-----------------|---------------|--------------------------|-----------------------------------|--------|------------------------------|-------------|
| | H nom | S max/Ref. | S min/Ref. | R min | G | R max | Ch max | P'r | Y |
| MHO-8 | 1.7 | 0.85 | 0.45 | 0.8 | 1.40 | 0.4 | 0.3 | 0.8 | 0.6 |
| MHO-9 | 2.1 | 1.25 | 0.65 | 1.0 | 1.50 | 0.5 | 0.35 | 2.0 | 0.7 |
| MHO-10 | 2.1 | 1.30 | 0.70 | 1.0 | 1.85 | 0.5 | 0.35 | 2.0 | 0.8 |
| MHO-11 | 2.5 | 1.30 | 0.70 | 1.0 | 1.95 | 0.6 | 0.4 | 2.0 | 0.9 |
| MHO-12 | 2.5 | 1.35 | 0.75 | 1.0 | 2.25 | 0.6 | 0.4 | 2.0 | 1.0 |
| MHO-13 | 2.9 | 1.35 | 0.90 | 1.2 | 2.35 | 0.7 | 0.5 | 4.0 | 1.1 |
| MHO-14 | 3.3 | 1.60 | 0.90 | 1.2 | 2.65 | 0.7 | 0.5 | 4.0 | 1.2 |
| MHO-15 | 3.3 | 1.65 | 0.95 | 1.5 | 2.80 | 0.7 | 0.5 | 4.0 | 1.3 |
| MHO-16 | 3.4 | 1.70 | 0.95 | 1.5 | 2.80 | 0.7 | 0.5 | 4.0 | 1.4 |
| MHO-17 | 3.4 | 1.70 | 0.95 | 1.5 | 3.35 | 0.75 | 0.6 | 4.0 | 1.5 |
| MHO-18 | 3.6 | 1.80 | 1.00 | 1.5 | 3.40 | 0.75 | 0.6 | 4.0 | 1.6 |
| MHO-19 | 3.6 | 1.80 | 1.00 | 1.5 | 3.40 | 0.8 | 0.65 | 4.0 | 1.7 |
| MHO-20 | 4.0 | 2.00 | 1.10 | 1.5 | 3.80 | 0.9 | 0.7 | 4.0 | 1.7 |
| MHO-21 | 4.0 | 2.10 | 1.20 | 1.5 | 4.20 | 0.9 | 0.7 | 4.0 | 1.8 |
| MHO-22 | 4.0 | 2.10 | 1.20 | 1.5 | 4.30 | 0.9 | 0.7 | 7.4 | 1.9 |
| MHO-23 | 4.0 | 2.20 | 1.20 | 1.5 | 4.90 | 1.0 | 0.8 | 7.4 | 2.0 |
| MHO-24 | 4.0 | 2.30 | 1.30 | 1.5 | 5.20 | 1.0 | 0.8 | 7.4 | 2.1 |
| MHO-25 | 4.0 | 2.60 | 1.30 | 1.5 | 6.00 | 1.0 | 0.8 | 7.4 | 2.4 |
| MHO-26 | 4.0 | 2.70 | 1.40 | 1.5 | 5.70 | 1.2 | 1.0 | 7.4 | 2.6 |
| MHO-27 | 4.6 | 2.80 | 1.40 | 1.9 | 5.90 | 1.2 | 1.0 | 10.8 | 2.7 |
| MHO-28 | 4.6 | 2.90 | 1.50 | 1.9 | 6.00 | 1.2 | 1.0 | 10.8 | 2.7 |
| MHO-30 | 4.6 | 3.00 | 1.50 | 1.9 | 6.00 | 1.2 | 1.0 | 10.8 | 2.9 |
| MHO-32 | 4.6 | 3.10 | 1.60 | 1.9 | 7.30 | 1.2 | 1.0 | 10.8 | 2.9 |
| MHO-34 | 4.6 | 3.20 | 1.60 | 1.9 | 7.60 | 1.2 | 1.0 | 10.8 | 3.2 |
| MHO-35 | 4.6 | 3.30 | 1.60 | 1.9 | 8.00 | 1.2 | 1.0 | 10.8 | 3.3 |
| MHO-36 | 4.6 | 3.40 | 1.70 | 1.9 | 8.30 | 1.2 | 1.0 | 10.8 | 3.5 |
| MHO-37 | 4.6 | 3.40 | 1.70 | 1.9 | 8.40 | 1.2 | 1.0 | 10.8 | 3.5 |
| MHO-38 | 4.6 | 3.40 | 1.70 | 1.9 | 8.60 | 1.2 | 1.0 | 10.8 | 3.6 |

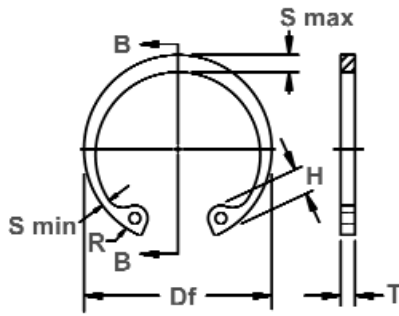
FOR HARDNESS SPECIFICATIONS, SEE END OF THE SECTION.



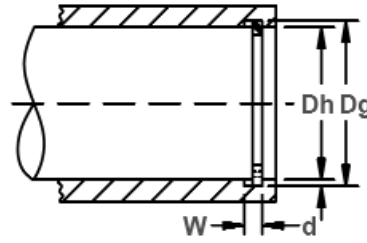
MHO Housing Rings

Axially Assembled, Internal, ANSI Metric

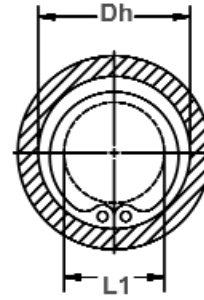
Once installed in the groove of a housing/bore, the portion of the ring protruding from the groove (also called a "shoulder") holds an assembly in place.



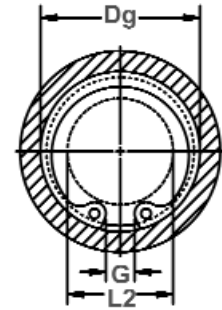
Free Diameter & Ring Measurements With Section B-B



Housing Diameter & Groove Dimensions



Clearance Diameter Compressed In Housing



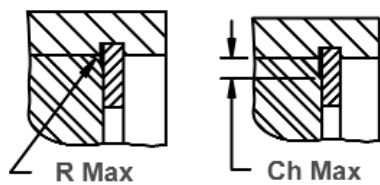
Clearance Diameter & Gap Width Released In Groove

| RING NO. | HOUSING DIAMETER | | GROOVE SIZE | | | | | RING SIZE & WEIGHT | | | | CLEARANCE DIA. | | i THRUST LD (kN) | | | |
|----------|------------------|---------|-------------|-------|---------|------|--------|--------------------|-------|--------------|------|-----------------------|--------------------|----------------------|------|-------|------|
| | | | DIAMETER | | WIDTH | | DEPTH | FREE DIAMETER | | THICKNESS*** | | Compressed in housing | Released in Groove | Sqr. corner abutment | | | |
| | Ds mm | Ds INCH | Dg | tol | F.I.M.* | W | tol | d | Df | tol | T | tol | kg | L1 | L2 | Pr | Pg |
| MHO-40 | 40 | 1.575 | 42.40 | +0.20 | 0.15 | 1.75 | +0.20 | 1.20 | 44.25 | +0.90 | 1.6 | -0.65 | 4.0 | 29.2 | 31.6 | 62.0 | 27.7 |
| MHO-42 | 42 | 1.654 | 44.50 | | 0.15 | 1.75 | | 1.25 | 46.60 | | 1.6 | | 4.7 | 29.7 | 32.2 | 65.0 | 30.2 |
| MHO-45 | 45 | 1.772 | 47.60 | | 0.15 | 1.75 | | 1.30 | 49.95 | | 1.6 | | 5.1 | 32.3 | 34.9 | 69.0 | 33.8 |
| MHO-46 | 46 | 1.811 | 48.70 | | 0.20 | 1.75 | | 1.35 | 51.05 | | 1.6 | | 5.2 | 33.3 | 36.0 | 71.0 | 36.0 |
| MHO-47 | 47 | 1.850 | 49.80 | | 0.20 | 1.75 | | 1.40 | 52.15 | | 1.6 | | 5.8 | 34.3 | 37.1 | 72.0 | 38.0 |
| MHO-48 | 48 | 1.890 | 50.90 | 0.20 | 1.75 | 1.45 | 53.30 | 1.6 | 6.1 | 35.0 | 37.9 | 74.0 | 40.0 | | | | |
| MHO-50 | 50 | 1.969 | 53.10 | 0.20 | 1.75 | 1.55 | 55.35 | 1.6 | 6.2 | 36.9 | 40.0 | 77.0 | 45.0 | | | | |
| MHO-52 | 52 | 2.047 | 55.30 | +0.30 | 0.20 | 2.15 | +0.20 | 1.65 | 57.90 | +1.00 | 2.0 | ±0.08 | 8.1 | 38.6 | 41.9 | 99.0 | 50.0 |
| MHO-55 | 55 | 2.165 | 58.40 | | 0.20 | 2.15 | | 1.70 | 61.10 | | 2.0 | | 8.9 | 40.8 | 44.2 | 105.0 | 54.0 |
| MHO-57 | 57 | 2.244 | 60.50 | | 0.20 | 2.15 | | 1.75 | 63.25 | | 2.0 | | 9.9 | 42.2 | 45.7 | 109.0 | 58.0 |
| MHO-58 | 58 | 2.283 | 61.60 | | 0.20 | 2.15 | | 1.80 | 64.40 | | 2.0 | | 10.1 | 43.2 | 46.8 | 111.0 | 60.0 |
| MHO-60 | 60 | 2.362 | 63.80 | | 0.20 | 2.15 | | 1.90 | 66.80 | | 2.0 | | 10.5 | 45.5 | 49.3 | 115.0 | 66.0 |
| MHO-62 | 62 | 2.441 | 65.80 | | 0.20 | 2.15 | | 1.90 | 68.60 | | 2.0 | | 11.5 | 47.0 | 50.8 | 119.0 | 68.0 |
| MHO-63 | 63 | 2.480 | 66.90 | | 0.20 | 2.15 | | 1.95 | 69.90 | | 2.0 | | 11.6 | 47.8 | 51.7 | 120.0 | 71.0 |
| MHO-65 | 65 | 2.559 | 69.00 | | 0.20 | 2.55 | | 2.00 | 72.20 | | 2.4 | | 15.4 | 49.4 | 53.4 | 149.0 | 75.0 |
| MHO-68 | 68 | 2.677 | 72.20 | | 0.20 | 2.55 | | 2.10 | 75.70 | | 2.4 | | 15.9 | 52.0 | 56.2 | 156.0 | 82.0 |
| MHO-70 | 70 | 2.756 | 74.40 | | 0.20 | 2.55 | | 2.20 | 77.50 | | 2.4 | | 16.1 | 53.8 | 58.2 | 161.0 | 88.0 |
| MHO-72 | 72 | 2.835 | 76.50 | 0.20 | 2.55 | 2.25 | 79.60 | 2.4 | 16.3 | 55.9 | 60.4 | 166.0 | 93.0 | | | | |
| MHO-75 | 75 | 2.953 | 79.70 | 0.20 | 2.55 | 2.35 | 83.30 | 2.4 | 19.3 | 58.2 | 62.9 | 172.0 | 101.0 | | | | |
| MHO-78 | 78 | 3.071 | 82.80 | 0.20 | 2.95 | 2.40 | 86.80 | 2.8 | 24.0 | 61.2 | 66.0 | 209.0 | 108.0 | | | | |
| MHO-80 | 80 | 3.150 | 85.00 | 0.20 | 2.95 | 2.50 | 89.10 | 2.8 | 25.9 | 63.0 | 68.0 | 215.0 | 115.0 | | | | |
| MHO-82 | 82 | 3.228 | 87.20 | 0.25 | 2.95 | 2.60 | 91.10 | 2.8 | 27.2 | 63.5 | 68.7 | 220.0 | 122.0 | | | | |
| MHO-85 | 85 | 3.346 | 90.40 | 0.25 | 2.95 | 2.70 | 94.40 | 2.8 | 29.5 | 66.8 | 72.2 | 228.0 | 131.0 | | | | |
| MHO-88 | 88 | 3.464 | 93.60 | 0.25 | 2.95 | 2.80 | 97.90 | 2.8 | 31.3 | 69.6 | 75.2 | 236.0 | 141.0 | | | | |
| MHO-90 | 90 | 3.543 | 95.70 | 0.25 | 2.95 | 2.85 | 100.00 | 2.8 | 32.6 | 71.6 | 77.3 | 241.0 | 147.0 | | | | |
| MHO-92 | 92 | 3.622 | 97.80 | 0.25 | 2.95 | 2.90 | 102.20 | 2.8 | 33.1 | 73.6 | 79.4 | 247.0 | 153.0 | | | | |

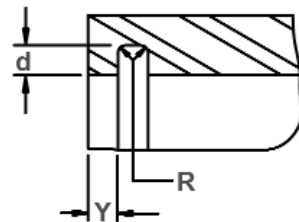
* F.I.M. (FULL INDICATOR MOVEMENT)- MAXIMUM ALLOWABLE DEVIATION OF CONCENTRICITY BETWEEN GROOVE & HOUSING.

i 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.

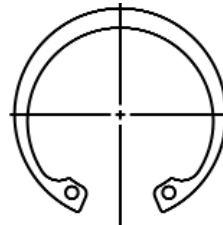
***FOR PLATED RINGS ADD 0.05 TO THE LISTED MAXIMUM THICKNESS. MAXIMUM THICKNESS WILL BE A MINIMUM OF 0.005 LESS THAN THE LISTED GROOVE WIDTH (W) MINIMUM.



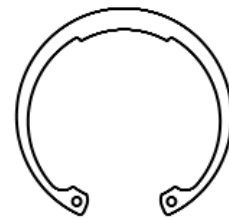
Allowable Corner Radius & Chamfer



Exploded Groove Profile & Edge Margin (Y)
 Maximum bottom radii (R), 0.10 for ring sizes
 -8 thru -17; 0.2 for ring sizes -18 thru -30;
 0.3 for ring sizes -32 thru -55
 0.4 for ring sizes -56 thru -250



Alternate Lug Design
 For Larger Sizes
 (Manufacturer's Option)



Alternate Design
 (Manufacturer's Option)

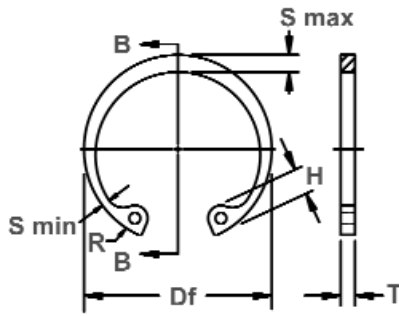
| RING NO. | LUG HEIGHT | MAXIMUM SECTION | MINIMUM SECTION | HOLE DIAMETER | GAP WIDTH Ring in Groove | ALLOWABLE CORNER RADII & CHAMFERS | | MAX. LOAD w/ R max or Ch max | EDGE MARGIN |
|----------|------------|-----------------|-----------------|---------------|--------------------------|-----------------------------------|--------|------------------------------|-------------|
| | H nom | S max/Ref. | S min/Ref. | R min | G | R max | Ch max | P'r | Y |
| MHO-40 | 5.1 | 4.00 | 2.00 | 1.9 | 9.70 | 1.7 | 1.3 | 17.4 | 3.6 |
| MHO-42 | 5.8 | 4.20 | 2.10 | 1.9 | 9.00 | 1.7 | 1.3 | 17.4 | 3.7 |
| MHO-45 | 6.0 | 4.30 | 2.10 | 1.9 | 9.60 | 1.7 | 1.3 | 17.4 | 3.9 |
| MHO-46 | 6.0 | 4.30 | 2.10 | 2.3 | 9.70 | 1.7 | 1.3 | 17.4 | 4.0 |
| MHO-47 | 6.0 | 4.30 | 2.20 | 2.3 | 10.00 | 1.7 | 1.3 | 17.4 | 4.2 |
| MHO-48 | 6.0 | 4.50 | 2.30 | 2.3 | 10.50 | 1.7 | 1.3 | 17.4 | 4.3 |
| MHO-50 | 6.0 | 4.60 | 2.30 | 2.3 | 12.10 | 1.7 | 1.3 | 17.4 | 4.6 |
| MHO-52 | 6.4 | 4.70 | 2.30 | 2.3 | 11.70 | 2.0 | 1.6 | 27.4 | 5.0 |
| MHO-55 | 6.7 | 5.10 | 2.50 | 2.3 | 11.90 | 2.0 | 1.6 | 27.4 | 5.1 |
| MHO-57 | 6.9 | 5.20 | 2.50 | 2.3 | 12.50 | 2.0 | 1.6 | 27.4 | 5.3 |
| MHO-58 | 6.9 | 5.30 | 2.60 | 2.3 | 13.00 | 2.0 | 1.6 | 27.4 | 5.4 |
| MHO-60 | 6.9 | 5.30 | 2.60 | 2.3 | 12.70 | 2.0 | 1.6 | 27.4 | 5.7 |
| MHO-62 | 7.1 | 5.30 | 2.60 | 2.7 | 14.00 | 2.0 | 1.6 | 27.4 | 5.7 |
| MHO-63 | 7.1 | 5.40 | 2.70 | 2.7 | 14.20 | 2.0 | 1.6 | 27.4 | 5.9 |
| MHO-65 | 7.4 | 5.60 | 2.80 | 2.7 | 14.20 | 2.0 | 1.6 | 42.0 | 6.0 |
| MHO-68 | 7.6 | 5.80 | 2.90 | 2.7 | 14.40 | 2.3 | 1.8 | 39.0 | 6.3 |
| MHO-70 | 7.6 | 5.80 | 2.90 | 2.7 | 16.10 | 2.3 | 1.8 | 39.0 | 6.6 |
| MHO-72 | 7.6 | 5.80 | 2.90 | 2.7 | 17.40 | 2.3 | 1.8 | 39.0 | 6.7 |
| MHO-75 | 7.9 | 6.20 | 3.10 | 2.7 | 16.80 | 2.3 | 1.8 | 54.0 | 7.1 |
| MHO-78 | 7.9 | 6.50 | 3.20 | 3.1 | 17.60 | 2.5 | 2.0 | 54.0 | 7.2 |
| MHO-80 | 7.9 | 6.70 | 3.30 | 3.1 | 17.20 | 2.5 | 2.0 | 54.0 | 7.5 |
| MHO-82 | 8.7 | 6.90 | 3.40 | 3.1 | 18.80 | 2.6 | 2.1 | 54.0 | 7.8 |
| MHO-85 | 8.7 | 7.00 | 3.60 | 3.1 | 19.10 | 2.6 | 2.1 | 54.0 | 8.1 |
| MHO-88 | 8.7 | 7.30 | 3.60 | 3.1 | 20.40 | 2.8 | 2.2 | 54.0 | 8.4 |
| MHO-90 | 8.7 | 7.40 | 3.60 | 3.1 | 21.40 | 2.8 | 2.2 | 54.0 | 8.6 |
| MHO-92 | 8.7 | 7.60 | 3.80 | 3.1 | 22.20 | 2.9 | 2.4 | 54.0 | 8.7 |

FOR HARDNESS SPECIFICATIONS, SEE END OF THE SECTION.

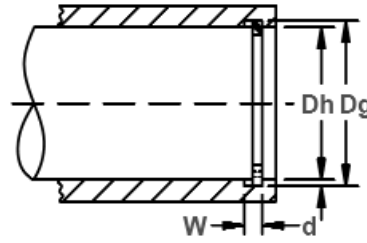
MHO Housing Rings

Axially Assembled, Internal, ANSI Metric

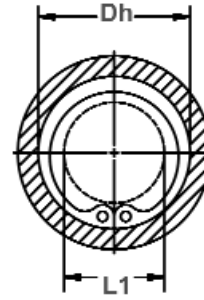
Once installed in the groove of a housing/bore, the portion of the ring protruding from the groove (also called a "shoulder") holds an assembly in place.



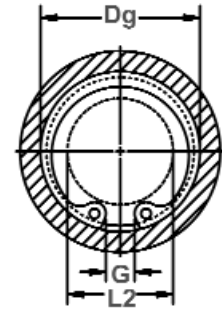
Free Diameter & Ring Measurements With Section B-B



Housing Diameter & Groove Dimensions



Clearance Diameter Compressed In Housing



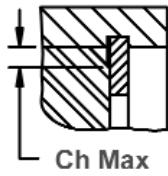
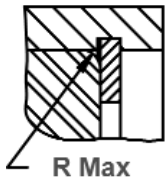
Clearance Diameter & Gap Width Released In Groove

| RING NO. | HOUSING DIAMETER | | GROOVE SIZE | | | | | | RING SIZE & WEIGHT | | | | CLEARANCE DIA. | | | i THRUST LD (kN) | |
|----------|------------------|---------|-------------|-------|---------|-------|--------|--------|--------------------|-------|--------------|-------|-------------------|-----------------------|--------------------|----------------------|-------|
| | | | DIAMETER | | | WIDTH | | DEPTH | FREE DIAMETER | | THICKNESS*** | | Wt. Per 1000 pcs. | Compressed in housing | Released in Groove | Sqr. corner abutment | |
| | Ds mm | Ds INCH | Dg | tol | F.I.M.* | W | tol | d | Df | tol | T | tol | | | | kg | L1 |
| MHO-95 | 95 | 3.740 | 101.00 | +0.30 | 0.25 | 2.95 | +0.20 | 3.00 | 105.60 | +1.65 | 2.8 | ±0.08 | 35.4 | 76.7 | 82.7 | 255.0 | 164.0 |
| MHO-98 | 98 | 3.858 | 104.20 | 0.25 | 2.95 | 3.10 | | 109.00 | 2.8 | | 39.4 | | 78.3 | 84.5 | 263.0 | 174.0 | |
| MHO-100 | 100 | 3.937 | 106.30 | 0.25 | 2.95 | 3.15 | | 110.70 | 2.8 | | 39.9 | | 80.3 | 86.6 | 269.0 | 181.0 | |
| MHO-102 | 102 | 4.016 | 108.40 | 0.25 | 2.95 | 3.20 | | 112.40 | 2.8 | | 42.2 | | 82.2 | 88.6 | 273.0 | 187.0 | |
| MHO-105 | 105 | 4.134 | 111.50 | 0.25 | 2.95 | 3.25 | | 115.80 | 2.8 | | 44.0 | | 85.1 | 91.6 | 281.0 | 196.0 | |
| MHO-108 | 108 | 4.252 | 114.60 | 0.25 | 2.95 | 3.30 | | 119.20 | 2.8 | | 45.8 | | 88.1 | 94.7 | 290.0 | 205.0 | |
| MHO-110 | 110 | 4.331 | 116.70 | 0.25 | 2.95 | 3.35 | | 120.80 | 2.8 | | 47.6 | | 88.4 | 95.1 | 295.0 | 212.0 | |
| MHO-115 | 115 | 4.528 | 121.90 | 0.25 | 2.95 | 3.45 | | 126.00 | 2.8 | | 50.3 | | 93.2 | 100.1 | 309.0 | 227.0 | |
| MHO-120 | 120 | 4.724 | 127.00 | 0.25 | 2.95 | 3.50 | | 132.40 | 2.8 | | 56.2 | | 98.2 | 105.2 | 321.0 | 241.0 | |
| MHO-125 | 125 | 4.921 | 132.10 | +0.40 | 0.25 | 2.95 | | 3.55 | 137.10 | | 2.8 | | 60.0 | 103.1 | 110.2 | 335.0 | 255.0 |
| MHO-130 | 130 | 5.118 | 137.20 | 0.25 | 2.95 | 3.60 | 142.50 | 2.8 | 63.5 | 108.0 | 115.2 | 349.0 | 269.0 | | | | |
| MHO-135 | 135 | 5.315 | 142.30 | 0.25 | 3.40 | +0.25 | 3.65 | 148.50 | 3.2 | 79 | 110.4 | 117.7 | 415.0 | 283.0 | | | |
| MHO-140 | 140 | 5.512 | 147.40 | 0.25 | 3.40 | | 3.70 | 154.10 | 3.2 | 83 | 115.3 | 122.7 | 429.0 | 298.0 | | | |
| MHO-145 | 145 | 5.709 | 152.50 | 0.25 | 3.40 | | 3.75 | 159.50 | 3.2 | 87 | 120.4 | 127.9 | 444.0 | 313.0 | | | |
| MHO-150 | 150 | 5.906 | 157.60 | 0.25 | 3.40 | | 3.80 | 164.50 | 3.2 | 89 | 125.3 | 132.9 | 460.0 | 327.0 | | | |
| MHO-155 | 155 | 6.102 | 162.70 | 0.30 | 3.40 | | 3.85 | 168.80 | 3.2 | 91 | 130.4 | 138.1 | 475.0 | 343.0 | | | |
| MHO-160 | 160 | 6.299 | 167.80 | 0.30 | 4.25 | | 3.90 | 175.10 | 4.0 | 121 | 133.8 | 141.6 | 613.0 | 359.0 | | | |
| MHO-165 | 165 | 6.496 | 172.90 | 0.30 | 4.25 | | 3.95 | 180.30 | +2.05 | 127 | 138.7 | 146.6 | 632.0 | 374.0 | | | |
| MHO-170 | 170 | 6.693 | 178.00 | 0.30 | 4.25 | | 4.00 | 185.60 | -2.05 | 138 | 143.6 | 151.6 | 651.0 | 390.0 | | | |
| MHO-175 | 175 | 6.890 | 183.20 | 0.30 | 4.25 | | 4.10 | 191.30 | 4.0 | 147 | 146.0 | 154.2 | 670.0 | 403.0 | | | |
| MHO-180 | 180 | 7.087 | 188.40 | 0.30 | 4.25 | | 4.20 | 196.60 | 4.0 | 156 | 151.4 | 159.8 | 690.0 | 434.0 | | | |
| MHO-185 | 185 | 7.283 | 193.60 | 0.30 | 5.10 | +0.50 | 4.30 | 202.70 | 4.8 | 194 | 154.7 | 163.3 | 851.0 | 457.0 | | | |
| MHO-190 | 190 | 7.480 | 198.80 | 0.30 | 5.10 | | 4.40 | 207.70 | 4.8 | 220 | 159.5 | 168.3 | 873.0 | 480.0 | | | |
| MHO-200 | 200 | 7.874 | 209.00 | 0.30 | 5.10 | | 4.50 | 217.80 | 4.8 | 235 | 169.2 | 178.2 | 919.0 | 517.0 | | | |
| MHO-210 | 210 | 8.268 | 219.40 | 0.30 | 5.10 | | 4.70 | 230.30 | 4.8 | 275 | 177.5 | 186.9 | 965.0 | 566.0 | | | |
| MHO-220 | 220 | 8.661 | 230.00 | 0.30 | 5.10 | | 5.00 | 240.50 | +2.30 | 285 | 184.1 | 194.1 | 1000.0 | 608.0 | | | |
| MHO-230 | 230 | 9.055 | 240.60 | 0.30 | 5.10 | | 5.30 | 251.40 | -2.30 | 330 | 194.0 | 204.6 | 1060.0 | 686.0 | | | |
| MHO-240 | 240 | 9.449 | 251.00 | 0.30 | 5.10 | | 5.50 | 262.30 | 4.8 | 365 | 200.4 | 211.4 | 1090.0 | 725.0 | | | |
| MHO-250 | 250 | 9.843 | 261.40 | 0.30 | 5.10 | | 5.70 | 273.30 | 4.8 | 375 | 210.0 | 221.4 | 1150.0 | 808.0 | | | |

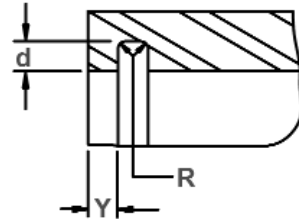
* F.I.M. (FULL INDICATOR MOVEMENT)- MAXIMUM ALLOWABLE DEVIATION OF CONCENTRICITY BETWEEN GROOVE & HOUSING.

i 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.

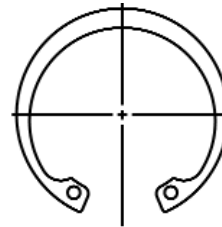
***FOR PLATED RINGS ADD 0.05 TO THE LISTED MAXIMUM THICKNESS. MAXIMUM THICKNESS WILL BE A MINIMUM OF 0.005 LESS THAN THE LISTED GROOVE WIDTH (W) MINIMUM.



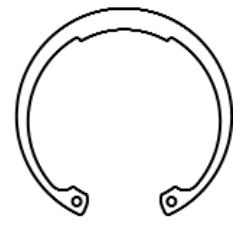
Allowable Corner Radius & Chamfer



Exploded Groove Profile & Edge Margin (Y)
 Maximum bottom radii (R), 0.10 for ring sizes
 -8 thru -17; 0.2 for ring sizes -18 thru -30;
 0.3 for ring sizes -32 thru -55
 0.4 for ring sizes -56 thru -250



Alternate Lug Design
 For Larger Sizes
 (Manufacturer's Option)



Alternate Design
 (Manufacturer's Option)

| RING NO. | LUG HEIGHT | MAXIMUM SECTION | MINIMUM SECTION | HOLE DIAMETER | GAP WIDTH Ring in Groove | ALLOWABLE CORNER RADII & CHAMFERS | | MAX. LOAD w/ R max or Ch max | EDGE MARGIN |
|----------|------------|-----------------|-----------------|---------------|--------------------------|-----------------------------------|--------|------------------------------|-------------|
| | | | | | | R max | Ch max | | |
| | H nom | S max/Ref. | S min/Ref. | R min | G | | | P'r | Y |
| MHO-95 | 8.7 | 7.80 | 3.90 | 3.1 | 22.60 | 3.0 | 2.5 | 54.0 | 9.0 |
| MHO-98 | 9.4 | 8.10 | 4.10 | 3.1 | 22.60 | 3.0 | 2.5 | 54.0 | 9.3 |
| MHO-100 | 9.4 | 8.20 | 4.10 | 3.1 | 24.10 | 3.1 | 2.5 | 54.0 | 9.5 |
| MHO-102 | 9.4 | 8.40 | 4.20 | 3.1 | 25.50 | 3.2 | 2.6 | 54.0 | 9.6 |
| MHO-105 | 9.4 | 8.40 | 4.30 | 3.1 | 26.00 | 3.3 | 2.6 | 54.0 | 9.8 |
| MHO-108 | 9.4 | 8.50 | 4.60 | 3.1 | 26.40 | 3.5 | 2.7 | 54.0 | 9.9 |
| MHO-110 | 10.3 | 8.70 | 4.60 | 3.8 | 27.50 | 3.6 | 2.8 | 54.0 | 10.1 |
| MHO-115 | 10.3 | 8.90 | 4.60 | 3.8 | 29.40 | 3.7 | 2.9 | 54.0 | 10.4 |
| MHO-120 | 10.3 | 9.40 | 4.60 | 3.8 | 27.20 | 3.9 | 3.1 | 54.0 | 10.5 |
| MHO-125 | 10.3 | 9.50 | 4.70 | 3.8 | 30.30 | 4.0 | 3.2 | 54.0 | 10.7 |
| MHO-130 | 10.3 | 9.80 | 4.90 | 3.8 | 31.00 | 4.0 | 3.2 | 54.0 | 10.8 |
| MHO-135 | 11.6 | 10.40 | 5.00 | 3.8 | 30.40 | 4.3 | 3.4 | 67.0 | 11.0 |
| MHO-140 | 11.6 | 10.40 | 5.00 | 3.8 | 30.40 | 4.3 | 3.4 | 67.0 | 11.1 |
| MHO-145 | 11.6 | 10.60 | 5.30 | 3.8 | 31.60 | 4.3 | 3.4 | 67.0 | 11.3 |
| MHO-150 | 11.6 | 10.80 | 5.40 | 3.8 | 33.50 | 4.3 | 3.4 | 67.0 | 11.4 |
| MHO-155 | 11.6 | 10.80 | 5.40 | 3.8 | 37.00 | 4.3 | 3.4 | 67.0 | 11.6 |
| MHO-160 | 12.3 | 10.90 | 5.40 | 4.6 | 35.00 | 4.5 | 3.6 | 102.0 | 11.7 |
| MHO-165 | 12.3 | 11.10 | 5.60 | 4.6 | 33.10 | 4.6 | 3.7 | 102.0 | 11.9 |
| MHO-170 | 12.3 | 11.40 | 5.60 | 4.6 | 38.20 | 4.6 | 3.7 | 102.0 | 12.0 |
| MHO-175 | 13.5 | 11.60 | 5.70 | 4.6 | 37.70 | 4.8 | 3.8 | 102.0 | 12.3 |
| MHO-180 | 13.5 | 12.00 | 5.90 | 4.6 | 39.00 | 5.0 | 4.0 | 102.0 | 12.6 |
| MHO-185 | 14.2 | 12.40 | 6.00 | 4.6 | 37.30 | 5.1 | 4.1 | 151.0 | 12.9 |
| MHO-190 | 14.2 | 12.90 | 6.30 | 4.6 | 35.00 | 5.3 | 4.3 | 151.0 | 13.2 |
| MHO-200 | 14.2 | 13.30 | 6.50 | 4.6 | 43.90 | 5.4 | 4.3 | 151.0 | 13.5 |
| MHO-210 | 15.2 | 14.20 | 6.90 | 4.6 | 40.60 | 5.8 | 4.6 | 151.0 | 14.1 |
| MHO-220 | 16.8 | 15.00 | 7.30 | 4.6 | 38.30 | 6.1 | 4.9 | 151.0 | 15.0 |
| MHO-230 | 16.8 | 15.50 | 7.50 | 4.6 | 49.00 | 6.3 | 5.1 | 151.0 | 15.9 |
| MHO-240 | 18.7 | 16.30 | 7.70 | 4.6 | 45.40 | 6.6 | 5.3 | 151.0 | 16.5 |
| MHO-250 | 18.7 | 16.70 | 7.80 | 4.6 | 53.00 | 6.7 | 5.4 | 151.0 | 17.1 |

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

| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
|-----------|------------|-------|-------------------|
| MHO | 8 | 15N | 82.5-86 |
| | 9-26 | 30N | 63-69.5 |
| | 27-250 | C | 44-51 |

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

| RING TYPE | SIZE RANGE | SCALE | ROCKWELL HARDNESS |
|-----------|------------|-------|-------------------|
| MHO | 8 | 15N | 86-88 |
| | 9-13 | 30N | 69.5-73 |
| | 14-20 | 30N | 68.5-72 |
| | 21-26 | 30N | 67.5-71 |
| | 27-250 | C | 48-52 |