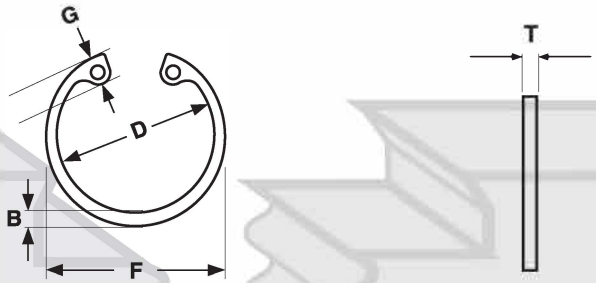
METRIC FASTENERS

# DIN 472 RETAINING RINGS




## DIN 472 Internal Type Retaining Rings

| Carbon Spring Steel | | D | F | B | H | T |
|---|---|---|---|---|---|---|
| Kanebridge Part Number | Rotor Clip® Part Number | Clearance Diameter | Free Diameter | Base Width | Lug Height (Max) | Thickness |
| M12D472 | DHO-12 | 13 | 12 | 1.7 | 3.4 | 1 |
| M14D472 | DHO-14 | 15.1 | 14 | 1.8 | 3.7 | 1 |
| M15D472 | DHO-15 | 16.2 | 15 | 2.0 | 3.7 | 1 |
| M16D472 | DHO-16 | 17.3 | 16 | 2.0 | 3.8 | 1 |
| M17D472 | DHO-17 | 18.3 | 17 | 2.1 | 3.9 | 1 |
| M19D472 | DHO-19 | 20.5 | 19 | 2.2 | 4.1 | 1 |
| M21D472 | DHO-21 | 22.5 | 21 | 2.4 | 4.2 | 1 |
| M22D472 | DHO-22 | 23.5 | 22 | 2.5 | 4.2 | 1 |
| M24D472 | DHO-24 | 25.6 | 24 | 2.6 | 4.4 | 1.2 |
| M30D472 | DHO-30 | 32.1 | 30 | 3.0 | 4.8 | 1.2 |
| M32D472 | DHO-32 | 34.4 | 32 | 3.2 | 5.4 | 1.2 |
| M35D472 | DHO-35 | 37.8 | 35 | 3.4 | 5.4 | 1.5 |
| M40D472 | DHO-40 | 43.5 | 40 | 3.9 | 5.8 | 1.75 |
| M42D472 | DHO-42 | 45.5 | 42 | 4.1 | 5.9 | 1.75 |
| M47D472 | DHO-47 | 50.5 | 47 | 4.4 | 6.4 | 1.75 |
| M52D472 | DHO-52 | 56.2 | 52 | 4.7 | 6.7 | 2 |
| M58D472 | DHO-58 | 62.2 | 58 | 5.2 | 6.9 | 2 |
| M75D472 | DHO-75 | 79.5 | 75 | 6.6 | 7.8 | 2.5 |
| M80D472 | DHO-80 | 85.5 | 80 | 7.0 | 8.5 | 2.5 |
| M90D472 | DHO-90 | 95.5 | 90 | 7.6 | 8.6 | 3 |
| M100D472 | DHO-100 | 105.5 | 100 | 8.4 | 9.2 | 3 |
| M110D472 | DHO-110 | 117 | 110 | 9.0 | 10.4 | 4 |
| M120D472 | DHO-120 | 127 | 120 | 9.7 | 11.0 | 4 |
| M130D472 | DHO-130 | 137 | 130 | 10.2 | 11.0 | 4 |
| M140D472 | DHO-140 | 147 | 140 | 10.7 | 11.2 | 4 |
| M160D472 | DHO-160 | 169 | 160 | 11.6 | 13.0 | 4 |

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| **Description** | A ring-shaped stamping with one opening on the circumference. The two ends at the opening are called lugs and flare slightly into the groove. When the lugs are released, contact is made with the grooved housing. |
| **Applications/ Advantages** | Internal retaining rings are for axial installation into machined grooves in housings and bores. The tapered section design assures uniform circular deformation, allowing for complete contact and tightness in groove. Steel rings can be safely used within a temperature range of -100°F to 500°F. |
| **Material** | Carbon spring steel SAE 1060 - 1074 hard drawn steel |
| **Heat Treatment** | Internal retaining rings from nominal sizes M3 thru M100 are heat treated using the austempering method. Rings are heated at an austenitizing temperature, then rapidly cooled in a salt bath to a certain temperature, which is maintained until their structure convert into lower bainite. The resulting structure features high tensile strength, hardness and excellent toughness. Parts are then cooled to room temperature.<br>Rings M102 and larger are heated at an austenitizing temperature then cooled in oil to room temperature. This martensitic structure features high hardness and brittleness. Parts are then tempered by reheating until achieving ideal hardness and toughness. Parts are cooled to room temperature. |
| **Hardness** | ***Sizes M3 thru M49:*** Rockwell C 47 - 54<br>***Sizes M50 thru M200:*** Rockwell C 44 - 51 |
| **Finish** | See Appendix-A for information on the coating of retaining rings. |