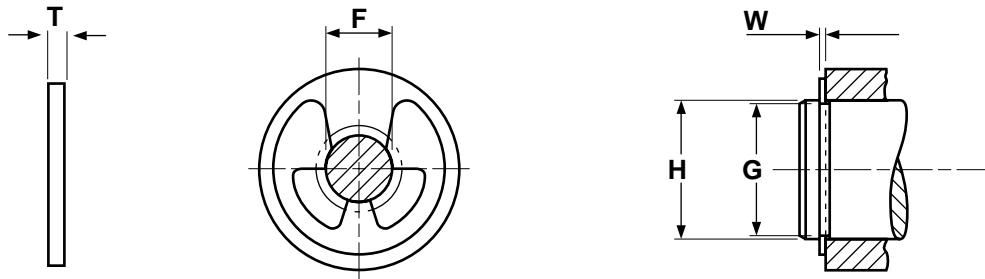


# Retaining Rings

## E Rings

Carbon Spring Steel  
& Stainless Steel



### TYPE E RETAINING RINGS

Rotor Clip®

| Carbon Spring Steel     |                    | Stainless Steel         |                    | H     | G               | W            | F             | T         |
|-------------------------|--------------------|-------------------------|--------------------|-------|-----------------|--------------|---------------|-----------|
| Rotor Clip® Part Number | Waldes Part Number | Rotor Clip® Part Number | Waldes Part Number | Shaft | Groove Diameter | Groove Width | Free Diameter | Thickness |
| E-6STPA                 | 5133-6STPP         | E-6SS                   | 5133-6H            | 0.062 | 0.052           | 0.012        | 0.051         | 0.010     |
| E-9STPA                 | 5133-9STPP         | E-9SS                   | 5133-9H            | 0.094 | 0.074           | 0.020        | 0.073         | 0.015     |
| E-12STPA                | 5133-12STPP        | E-12SS                  | 5133-12H           | 0.125 | 0.095           | 0.020        | 0.094         | 0.015     |
| SE-14STPA               | X5133-14STPP       | SE-14SS                 | X5133-14H          | 0.140 | 0.102           | 0.020        | 0.100         | 0.015     |
| E-15STPA                | 5133-15STPP        | E-15SS                  | 5133-15H           | 0.156 | 0.116           | 0.029        | 0.114         | 0.025     |
| SE-17STPA               | X5133-17STPP       | SE-17SS                 | X5133-17H          | 0.172 | 0.127           | 0.029        | 0.125         | 0.025     |
| E-18STPA                | 5133-18STPP        | E-18SS                  | 5133-18H           | 0.188 | 0.147           | 0.029        | 0.145         | 0.025     |
| SE-21STPA               | X5133-21STPP       | SE-21SS                 | X5133-21H          | 0.219 | 0.188           | 0.029        | 0.185         | 0.025     |
| E-25STPA                | 5133-25STPP        | E-25SS                  | 5133-25H           | 0.250 | 0.210           | 0.029        | 0.207         | 0.025     |
| SE-31STPA               | X5133-31STPP       | SE-31SS                 | X5133-31H          | 0.312 | 0.250           | 0.029        | 0.243         | 0.025     |
| E-37STPA                | 5133-37STPP        | E-37SS                  | 5133-37H           | 0.375 | 0.303           | 0.039        | 0.300         | 0.035     |
| E-43STPA                | 5133-43STPP        | E-43SS                  | 5133-43H           | 0.438 | 0.343           | 0.039        | 0.337         | 0.035     |
| E-50STPA                | 5133-50STPP        | E-50SS                  | 5133-50H           | 0.500 | 0.396           | 0.046        | 0.392         | 0.042     |
| E-62STPA                | 5133-62STPP        | E-62SS                  | 5133-62H           | 0.625 | 0.485           | 0.046        | 0.480         | 0.042     |
| SE-74STPA               | X5133-74STPP       | SE-74SS                 | X5133-74H          | 0.750 | 0.625           | 0.056        | 0.616         | 0.050     |
| E-87STPA                | 5133-87STPP        | E-87SS                  | 5133-87H           | 0.875 | 0.675           | 0.056        | 0.668         | 0.050     |
| SE-98STPA               | X5133-98STPP       | SE-98SS                 | X5133-98H          | 0.984 | 0.835           | 0.056        | 0.822         | 0.050     |
| SE-118STPA              | X5133-118STPP      | SE-118SS                | X5133-118H         | 1.188 | 1.079           | 0.068        | 1.066         | 0.062     |

|                                 |   |  |
|---------------------------------|---|--|
| <b>Description</b>              | A semi-circular stamping with two ends which are set further apart than both internal and external rings. The two ends have flared "prongs" which are substantially wider than the other parts of the ring. A center prong extends from the inside perimeter of the ring, halfway between the two ends. The three prongs, when radially installed, make contact with the bottom of the groove.                                |  |
| <b>Applications/ Advantages</b> | Designed for radial (vertical) installation into machined grooves on shafts of varying diameter. E-rings require a deeper groove, but provide exceptional thrust loadings when compared to fasteners of the same size and weight. Steel rings can be safely used within a temperature range of -100°F to 500°F. Stainless steel rings are corrosion resistant & can be used in higher heat applications from -100°F to 900°F. |  |
| <b>Material</b>                 | Steel: Carbon spring steel SAE 1060 - 1090  | Stainless: Precipitation Hardened Alloy 15% Chromium, 7% Nickel, 2% Molybdenum   |
| <b>Heat Treatment</b>           | Retaining rings are heat treated using the austempering method. Rings are uniformly heated to temperatures over 1500° F. They are then isothermally quenched in a molten salt bath at 600° F for 35 minutes. This results in parts with a bainite structure characterized by good mechanical properties.  |  |
| <b>Hardness</b>                 | <b>Steel</b><br>Size 6: Rockwell 15N 84.5 - 87 (Hardness cannot be checked with any degree of accuracy on this size)<br>Sizes 9 - S14: Rockwell 15N 84.5 - 87<br>Sizes 14 - S31: Rockwell 30N 66.5 - 71<br>Sizes 37 & over: Rockwell C 47 - 52  | <b>Stainless</b><br>Size 6: Rockwell 15N 82.5 - 86 (Hardness cannot be checked with any degree of accuracy on this size)<br>Sizes 9 - S14: Rockwell 15N 82.5 - 86<br>Sizes 14 - S31: Rockwell 30N 63 - 69.5<br>Sizes 37 & over: Rockwell C 44 - 51 |
| <b>Tensile Strength</b>         | -   | Stainless: 225,000 psi. minimum  |
| <b>Finish</b>                   | See Appendix-A for information on the coating of retaining rings.   |  |