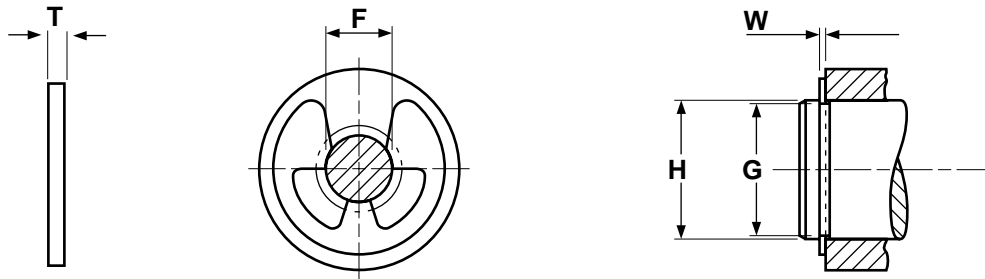


Retaining Rings

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

Description	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.	
Applications/ Advantages	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.	
Material	Steel: Carbon spring steel SAE 1060 - 1090	Stainless: Precipitation Hardened Alloy 15% Chromium, 7% Nickel, 2% Molybdenum
Heat Treatment	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.	
Hardness	Steel Size 6: Rockwell 15N 84.5 - 87 (Hardness cannot be checked with any degree of accuracy on this size) Sizes 9 - S14: Rockwell 15N 84.5 - 87 Sizes 14 - S31: Rockwell 30N 66.5 - 71 Sizes 37 & over: Rockwell C 47 - 52	Stainless Size 6: Rockwell 15N 82.5 - 86 (Hardness cannot be checked with any degree of accuracy on this size) Sizes 9 - S14: Rockwell 15N 82.5 - 86 Sizes 14 - S31: Rockwell 30N 63 - 69.5 Sizes 37 & over: Rockwell C 44 - 51
Tensile Strength	-	Stainless: 225,000 psi. minimum
Finish	See Appendix-A for information on the coating of retaining rings.	