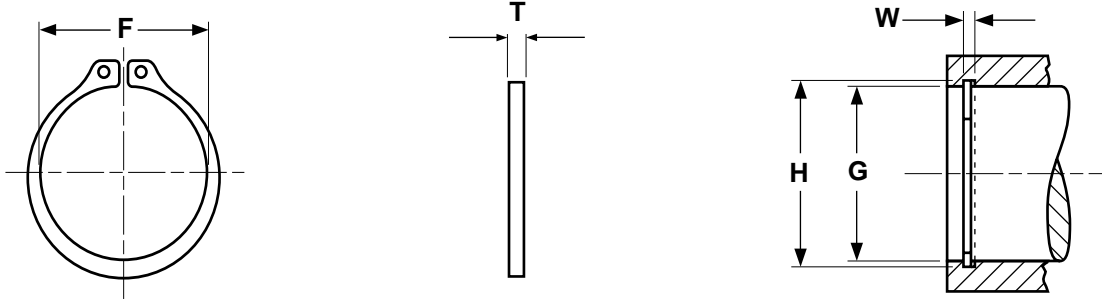


# Retaining Rings

## External Type SH

Carbon Spring Steel  
& Stainless Steel



EXTERNAL TYPE 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	
SH-25STPA	5100-25STPP	SH-25SS	5100-25H	0.250	0.230	0.029	0.225	0.025	
SH-28STPA	5100-28STPP	SH-28SS	5100-28H	0.281	0.261	0.029	0.256	0.025	
SH-31STPA	5100-31STPP	SH-31SS	5100-31H	0.312	0.290	0.029	0.281	0.025	
SH-34STPA	5100-34STPP	SH-34SS	5100-34H	0.344	0.321	0.029	0.309	0.025	
SH-37STPA	5100-37STPP	SH-37SS	5100-37H	0.375	0.352	0.029	0.338	0.025	
SH-40STPA	5100-40STPP	SH-40SS	5100-40H	0.406	0.382	0.029	0.366	0.025	
SH-43STPA	5100-43STPP	SH-43SS	5100-43H	0.438	0.412	0.029	0.395	0.025	
SH-50STPA	5100-50STPP	SH-50SS	5100-50H	0.500	0.468	0.039	0.461	0.035	
SH-56STPA	5100-56STPP	SH-56SS	5100-56H	0.562	0.530	0.039	0.521	0.035	
SH-59STPA	5100-59STPP	SH-59SS	5100-59H	0.594	0.559	0.039	0.550	0.035	
SH-62STPA	5100-62STPP	SH-62SS	5100-62H	0.625	0.588	0.039	0.579	0.035	
SH-68STPA	5100-68STPP	SH-68SS	5100-68H	0.688	0.646	0.046	0.635	0.042	
SH-75STPA	5100-75STPP	SH-75SS	5100-75H	0.750	0.704	0.046	0.693	0.042	
SH-81STPA	5100-81STPP	SH-81SS	5100-81H	0.812	0.762	0.046	0.751	0.042	
SH-87STPA	5100-87STPP	SH-87S	5100-87H	0.875	0.821	0.046	0.810	0.042	
SH-93STPA	5100-93STPP	SH-93SS	5100-93H	0.938	0.882	0.046	0.867	0.042	
SH-100STPA	5100-100STPP	SH-100SS	5100-100H	1.000	0.940	0.046	0.925	0.042	
SH-106STPA	5100-106STPP	SH-106SS	5100-106H	1.062	0.998	0.056	0.982	0.050	
SH-112STPA	5100-112STPP	SH-112SS	5100-112H	1.125	1.059	0.056	1.041	0.050	
SH-118STPA	5100-118STPP	SH-118SS	5100-118H	1.188	1.118	0.056	1.098	0.050	
SH-125STPA	5100-125STPP	SH-125SS	5100-125H	1.250	1.176	0.056	1.156	0.050	
SH-131STPA	5100-131STPP	SH-131SS	5100-131H	1.312	1.232	0.056	1.214	0.050	
SH-137STPA	5100-137STPP	SH-137SS	5100-137H	1.375	1.291	0.056	1.272	0.050	
SH-143STPA	5100-143STPP	SH-143SS	5100-143H	1.438	1.350	0.056	1.333	0.050	
SH-150STPA	5100-150STPP	SH-150SS	5100-150H	1.500	1.406	0.056	1.387	0.050	
SH-156STPA	5100-156STPP	SH-156SS	5100-156H	1.562	1.468	0.068	1.446	0.062	
SH-162STPA	5100-162STPP	SH-162SS	5100-162H	1.625	1.529	0.068	1.503	0.062	
SH-168STPA	5100-168STPP	SH-168SS	5100-168H	1.688	1.589	0.068	1.560	0.062	
SH-175STPA	5100-175STPP	SH-175SS	5100-175H	1.750	1.650	0.068	1.618	0.062	

EXTERNAL TYPE RETAINING RINGS (CONTINUED)								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
SH-181STPA	5100-181STPP	SH-181SS	5100-181H	1.812	1.708	0.068	1.675	0.062
SH-187STPA	5100-187STPP	SH-187SS	5100-187H	1.875	1.769	0.068	1.735	0.062
SH-200STPA	5100-200STPP	SH-200SS	5100-200H	2.000	1.886	0.068	1.850	0.062
SH-206STPA	5100-206STPP	SH-206SS	5100-206H	2.062	1.946	0.086	1.906	0.078
SH-212STPA	5100-212STPP	SH-212SS	5100-212H	2.125	2.003	0.086	1.964	0.078
SH-225STPA	5100-225STPP	SH-225SS	5100-225H	2.250	2.120	0.086	2.081	0.078
SH-231STPA	5100-231STPP	SH-231SS	5100-231H	2.312	2.178	0.086	2.139	0.078
SH-237STPA	5100-237STPP	SH-237SS	5100-237H	2.375	2.239	0.086	2.197	0.078
SH-243STPA	5100-243STPP	SH-243SS	5100-243H	2.438	2.299	0.086	2.255	0.078
SH-250STPA	5100-250STPP	SH-250SS	5100-250H	2.500	2.360	0.086	2.313	0.078
SH-262STPA	5100-262STPP	SH-262SS	5100-262H	2.625	2.481	0.086	2.428	0.078
SH-268STPA	5100-268STPP	SH-268SS	5100-268H	2.688	2.541	0.086	2.485	0.078
SH-275STPA	5100-275STPP	SH-275SS	5100-275H	2.750	2.602	0.103	2.543	0.093
SH-287STPA	5100-287STPP	SH-287SS	5100-287H	2.875	2.721	0.103	2.659	0.093
SH-300STPA	5100-300STPP	SH-300SS	5100-300H	3.000	2.838	0.103	2.775	0.093

<b>Description</b>	A ring-shaped stamping with one opening on the circumference. The two ends at the opening are called lugs and flare out slightly allowing for easier installation onto shafts.	
<b>Applications/ Advantages</b>	Tapered section design assures constant moment and, therefore, uniform circular deformation; allows for complete contact and tightness in groove. The external design is for axial assembly into machined grooves on shafts. 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>	<b>Steel:</b> Carbon spring steel SAE 1060 - 1090	<b>Stainless:</b> 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> Sizes 25 & 46: Rockwell 30N 69.5 - 73 Sizes 50 - 81: Rockwell 30N 66 - 71 Sizes 87 - 102 Rockwell C 47 - 53 Sizes 106 - 343: Rockwell C 47 - 52	<b>Stainless</b> Sizes 25 - 31: Rockwell 30N 63 - 69.5 Sizes 87 & over: Rockwell C 44 - 51
<b>Tensile Strength</b>	-	<b>Stainless:</b> 225,000 psi. minimum
<b>Finish</b>	See Appendix-A for information about the coating of retaining rings.	