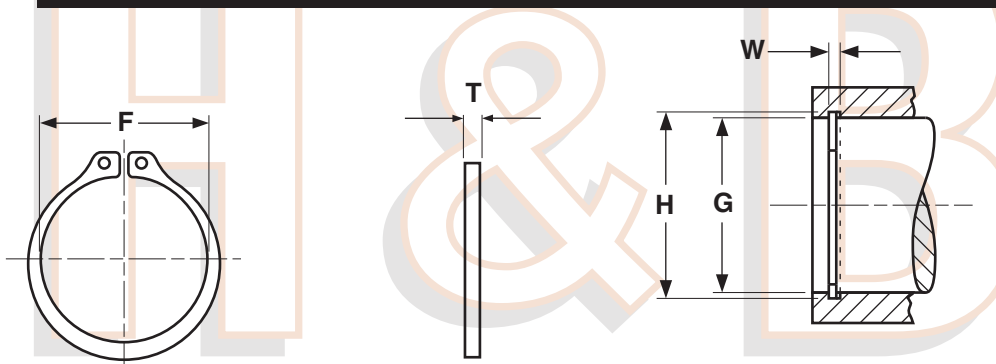


# Retaining Rings

# External Type

Carbon Spring Steel  
& Stainless Steel



## EXTERNAL TYPE RETAINING RINGS

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

EXTERNAL TYPE RETAINING RINGS (CONTINUED)						
Carbon Spring Steel	Stainless Steel	H	G	W	F	T
Waldes Part Number	Waldes Part Number	Shaft	Groove Diameter	Groove Width	Free Diameter	Thickness
5100-181STPP	5100-181H	1.812	1.708	0.068	1.675	0.062
5100-187STPP	5100-187H	1.875	1.769	0.068	1.735	0.062
5100-200STPP	5100-200H	2.000	1.886	0.068	1.850	0.062
5100-206STPP	5100-206H	2.062	1.946	0.086	1.906	0.078
5100-212STPP	5100-212H	2.125	2.003	0.086	1.964	0.078
5100-225STPP	5100-225H	2.250	2.120	0.086	2.081	0.078
5100-231STPP	5100-231H	2.312	2.178	0.086	2.139	0.078
5100-237STPP	5100-237H	2.375	2.239	0.086	2.197	0.078
5100-243STPP	5100-243H	2.438	2.299	0.086	2.255	0.078
5100-250STPP	5100-250H	2.500	2.360	0.086	2.313	0.078
5100-262STPP	5100-262H	2.625	2.481	0.086	2.428	0.078
5100-268STPP	5100-268H	2.688	2.541	0.086	2.485	0.078
5100-275STPP	5100-275H	2.750	2.602	0.103	2.543	0.093
5100-287STPP	5100-287H	2.875	2.721	0.103	2.659	0.093
5100-300STPP	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>	The external retaining ring is for axial assembly into machined grooves on shafts. 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. Stainless steel rings are corrosion resistant & can be used in higher heat applications from -100°F to 900°F.	
<b>Material</b>	<i>Steel</i> Carbon spring steel SAE 1060 - 1090	<i>Stainless</i> 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>	<i>Sizes 25 &amp; 46:</i> Rockwell 30N 69.5 - 73 <i>Sizes 50 - 81:</i> Rockwell 30N 66 - 71 <i>Sizes 87 - 102:</i> Rockwell C 47 - 53 <i>Sizes 106 - 343:</i> Rockwell C 47 - 52	<i>Sizes 25 - 31:</i> Rockwell 30N 63 - 69.5 <i>Sizes 87 &amp; over:</i> Rockwell C 44 - 51
<b>Tensile Strength</b>	225,000 psi. minimum	
<b>Finish</b>	See Appendix-A for information about the coating of retaining rings.	