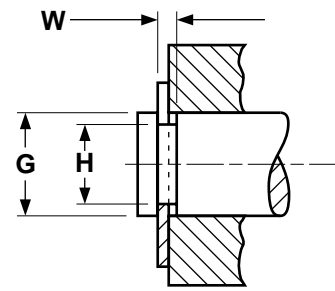
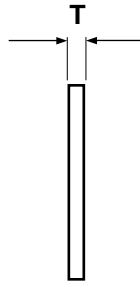
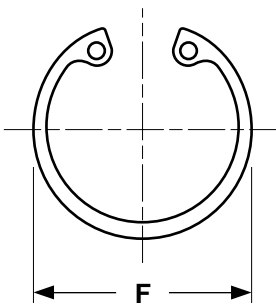


# Retaining Rings

## Internal Type HO

Carbon Spring Steel  
& Stainless Steel



INTERNAL TYPE RETAINING RINGS								Rotor Clip®
Carbon Steel		Stainless Steel		H	G	W	F	T
Rotor Clip® Part Number	Waldes Part Number	Rotor Clip® Part Number	Waldes Part Number	Housing Diameter	Groove Diameter	Groove Width	Free Diameter	Thickness
HO-25STPA	N5000-25STPP	HO-25SS	N5000-25H	0.250	0.268	0.020	0.280	0.015
HO-31STPA	N5000-31STPP	HO-31SS	N5000-31H	0.312	0.330	0.020	0.346	0.015
HO-37STPA	N5000-37STPP	HO-37SS	N5000-37H	0.375	0.397	0.029	0.415	0.025
HO-43STPA	N5000-43STPP	HO-43SS	N5000-43H	0.438	0.461	0.029	0.482	0.025
HO-50STPA	N5000-50STPP	HO-50SS	N5000-50H	0.500	0.530	0.039	0.548	0.035
HO-56STPA	N5000-56STPP	HO-56SS	N5000-56H	0.562	0.596	0.039	0.620	0.035
HO-62STPA	N5000-62STPP	HO-62SS	N5000-62H	0.625	0.665	0.039	0.694	0.035
HO-68STPA	N5000-68STPP	HO-68SS	N5000-68H	0.688	0.732	0.039	0.763	0.035
HO-75STPA	N5000-75STPP	HO-75SS	N5000-75H	0.750	0.796	0.039	0.831	0.035
HO-81STPA	N5000-81STPP	HO-81SS	N5000-81H	0.812	0.862	0.046	0.901	0.042
HO-87STPA	N5000-87STPP	HO-87SS	N5000-87H	0.875	0.931	0.046	0.971	0.042
HO-93STPA	N5000-93STPP	HO-93SS	N5000-93H	0.938	1.000	0.046	1.041	0.042
HO-100STPA	N5000-100STPP	HO-100SS	N5000-100H	1.000	1.066	0.046	1.111	0.042
HO-106STPA	N5000-106STPP	HO-106SS	N5000-106H	1.062	1.130	0.056	1.180	0.050
HO-112STPA	N5000-112STPP	HO-112SS	N5000-112H	1.125	1.197	0.056	1.249	0.050
HO-118STPA	N5000-118STPP	HO-118SS	N5000-118H	1.181	1.255	0.056	1.319	0.050
HO-125STPA	N5000-125STPP	HO-125SS	N5000-125H	1.250	1.330	0.056	1.388	0.050
HO-131STPA	N5000-131STPP	HO-131SS	N5000-131H	1.312	1.396	0.056	1.456	0.050
HO-137STPA	N5000-137STPP	HO-137SS	N5000-137H	1.375	1.461	0.056	1.526	0.050
HO-143STPA	N5000-143STPP	HO-143SS	N5000-143H	1.438	1.528	0.056	1.596	0.050
HO-150STPA	N5000-150STPP	HO-150SS	N5000-150H	1.500	1.594	0.056	1.660	0.050
HO-156STPA	N5000-156STPP	HO-156SS	N5000-156H	1.562	1.658	0.068	1.734	0.062
HO-162STPA	N5000-162STPP	HO-162SS	N5000-162H	1.625	1.725	0.068	1.804	0.062
HO-168STPA	N5000-168STPP	HO-168SS	N5000-168H	1.688	1.792	0.068	1.874	0.062
HO-175STPA	N5000-175STPP	HO-175SS	N5000-175H	1.750	1.858	0.068	1.942	0.062
HO-181STPA	N5000-181STPP	HO-181SS	N5000-181H	1.812	1.922	0.068	2.012	0.062
HO-187STPA	N5000-187STPP	HO-187SS	N5000-187H	1.875	1.989	0.068	2.072	0.062
HO-193STPA	N5000-193STPP	HO-193SS	N5000-193H	1.938	2.056	0.068	2.141	0.062
HO-200STPA	N5000-200STPP	HO-200SS	N5000-200H	2.000	2.122	0.068	2.210	0.062

INTERNAL 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	Housing Diameter	Groove Diameter	Groove Width	Free Diameter	Thickness
HO-206STPA	N5000-206STPP	HO-206SS	N5000-206H	2.062	2.186	0.086	2.280	0.078
HO-212STPA	N5000-212STPP	HO-212SS	N5000-212H	2.125	2.251	0.086	2.350	0.078
HO-218STPA	N5000-218STPP	HO-218SS	N5000-218H	2.188	2.318	0.086	2.415	0.078
HO-225STPA	N5000-225STPP	HO-225SS	N5000-225H	2.250	2.382	0.086	2.490	0.078
HO-231STPA	N5000-231STPP	HO-231SS	N5000-231H	2.312	2.450	0.086	2.560	0.078
HO-237STPA	N5000-237STPP	HO-237SS	N5000-237H	2.375	2.517	0.086	2.630	0.078
HO-244STPA	N5000-244STPP	HO-244SS	N5000-244H	2.440	2.584	0.086	2.702	0.078
HO-250STPA	N5000-250STPP	HO-250SS	N5000-250H	2.500	2.648	0.086	2.775	0.078
HO-256STPA	N5000-256STPP	HO-256SS	N5000-256H	2.562	2.714	0.103	2.844	0.093
HO-262STPA	N5000-262STPP	HO-262SS	N5000-262H	2.625	2.781	0.103	2.910	0.093
HO-268STPA	N5000-268STPP	HO-268SS	N5000-268H	2.688	2.848	0.103	2.980	0.093
HO-275STPA	N5000-275STPP	HO-275SS	N5000-275H	2.750	2.914	0.103	3.050	0.093
HO-281STPA	N5000-281STPP	HO-281SS	N5000-281H	2.812	2.980	0.103	3.121	0.093
HO-287STPA	N5000-287STPP	HO-287SS	N5000-287H	2.875	3.051	0.103	3.191	0.093
HO-300STPA	N5000-300STPP	HO-300SS	N5000-300H	3.000	3.182	0.103	3.325	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 slightly into the groove. When the lugs are released, contact is made with the grooved housing.	
<b>Applications/ Advantages</b>	Tapered section design assures constant moment and, therefore, uniform circular deformation; allows for complete contact and tightness in groove. The internal design is for axial installation into machined grooves in housings and bores. 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 & 31: Rockwell 15N 86 - 88 Sizes 37 - 51: Rockwell 30N 69.5 - 73 Sizes 56 - 77: Rockwell 30N 67.5 - 72 Sizes 81 - 102: Rockwell 30N 66 - 71 Sizes 106 - 347: Rockwell C 47 - 52	<b>Stainless</b> Sizes 25 & 31: Rockwell 15N 82.5 - 86 Sizes 37 - 102: Rockwell 30N 63 - 69.5 Sizes 106 & over: Rockwell C 44 - 51
<b>Tensile Strength</b>	-	<b>Stainless:</b> 225,000 psi. minimum
<b>Finish</b>	See Appendix-A for information on the coating of retaining rings.	