

Product Overview for the Aerospace Industry



Designed for Quality



The Retaining Ring and Wave Spring Supplier of the Aerospace Industry

Rotor Clip is a global manufacturer of retaining rings, spiral rings and wave springs for the Aircraft, Space and Defense (AS&D) industry, and is an approved supplier of Airbus. Rings can be manufactured in sizes from 1/25" (1mm) to 39.4" (1000mm) meeting inch, DIN, ANSI and JIS standards. Many materials and finishes are available to suit ones requirements, and Rotor Clip's knowledgeable sales engineers are available to assist designers in selecting which options are best for their project. All products are manufactured in accordance with **ISO/TS 16949, ISO 9001, ISO14001 and AS9100** specifications.

Retaining rings and wave springs are found in numerous applications related to the aerospace industry including, but not limited to:

**Lighting Systems • Heating and Air Conditioning Systems
Seating Mechanisms • Gear Retention • Communications Equipment
Instruments • Controls • Hydraulic Equipment • Door Handles
Bearings • Seat Belts • Electronic Equipment • Motors**



Tapered Section Retaining Rings/Spiral Rings



Axially assembled retaining rings are designed for axial installation into machined grooves. These rings are either internal for installation in housings and bores, or external for assembly on shafts. Once installed, they provide a protrusion or "shoulder" for retaining parts.

Radial retaining rings are radially installed into machined grooves on shafts. They don't have lugs or lug holes and do not extend as far around the circumference of the grooves as their axial counterparts.

Self-locking retaining rings can be installed on a shaft or in a housing/bore without using a groove. They save machining time and overall costs since a groove is not needed for installation.



Spiral rings are axially installed into machined grooves in housings/bores or on shafts to retain assemblies. They provide 360° contact with the groove and offer more clearance than a tapered section ring.

The type of ring used depends upon the application. Contact Technical Sales for assistance in style selection: tech@rotorclip.com



Retaining Ring Aerospace/Mil Spec Cross Reference

RETAINING RINGS

 HO MS16625 Axial Assembly Internal Inch Standard	 HOI MS16627 Axial Assembly Internal Inch Inverted Lugs	 BHO MS16629 Axial Assembly Internal Inch Bowed	 VHO MS16631 Axial Assembly Internal Inch Beveled
 SH MS16624 Axial Assembly/ External Inch Standard	 SHI MS16626 Axial Assembly External Inch Inverted Lugs	 SHR MS3217 Axial Assembly External Inch Reinforced	 SHM Axial Assembly External Inch Tamper-Proof
 BSH MS16628 Axial Assembly External Inch Bowed	 VSH MS16630 Axial Assembly External Inch Beveled	 E/SE/YE/ZE MS16633 Radial Assembly External Inch "E" Ring	 RE MS3215 Radial Assembly External Inch Reinforced "E"
 BE MS16634 Radial Assembly External Inch Bowed	 C MS16632 Radial Assembly External Inch Crescent	 PO/POL Radial Assembly External Inch Poodle	 EL MS3216 Radial Assembly External Inch Bowed Locking
 LC MS90708 Radial Assembly External Inch Interlocking	 SHF MS90707 Self-Locking External Inch Friction	 RG Self-Locking External Inch Radial Grip	 TX Self-Locking External Inch Push-On (Curved Rim)
 TY Self-Locking External Inch Push-On (Flat Rim)	 TI Self-Locking Internal Inch Push-On		

SPIRAL RINGS

 KM AS 3217 MIL-DTL-27426/3 Internal Inch Medium Duty	 KG AS 3215 MIL-DTL-27426/4 Internal Inch Heavy Duty	 MKA MA 4017 Internal Metric Aerospace
 CM AS 3218 MIL-DTL-27426/1 External Inch Medium Duty	 CG AS 3216 MIL-DTL-27426/2 External Inch Heavy Duty	 MCA MA 4016 External Metric Aerospace





TRUWAVE® Wave Springs

TruWave flat wire wave springs help to save up to 50% of axial space in your application when compared to conventional coil springs. The result is more compact applications in which unnecessary space and therefore excess material of neighboring components can be reduced to a minimum. The flat wire effectively reduces the solid height of the wave spring so that with the same amount of turns one can visibly reduce the work height without compromising the load or spring deflection. Another advantage is that one can increase the number of turns of the spring design in order to decrease the deflection per turn when the wave spring is compressed.

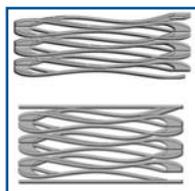


Single turn wave springs are ideal for short deflection applications with low to medium forces. They are offered in a number of waves and material thicknesses and designed for a wide range of bore and rod diameters. Available in gap and overlap designs. Multi turn wave springs are available in a wide variety of loads, deflections and diameters. They are ideal for medium and heavy duty applications and have high thrust load capacity. Available with plain or shim ends.

WAVE SPRINGS



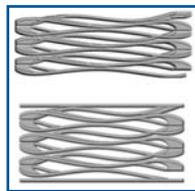
SST
Single Turn
Wave Spring
Inch



WSL, WSM, WSR
Multi Turn
Wave Spring
Inch



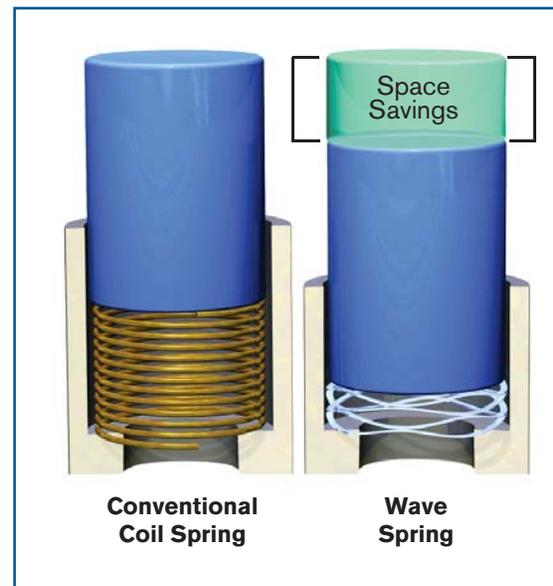
MST
Single Turn
Wave Spring
Metric



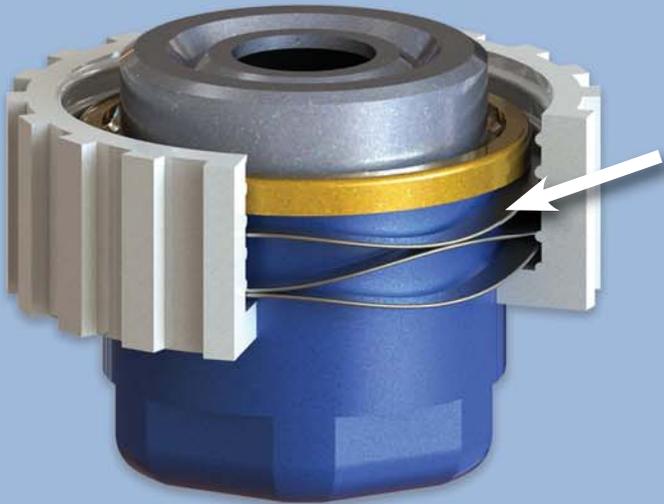
MWL, MWM, MWR
Multi Turn
Wave Spring
Metric



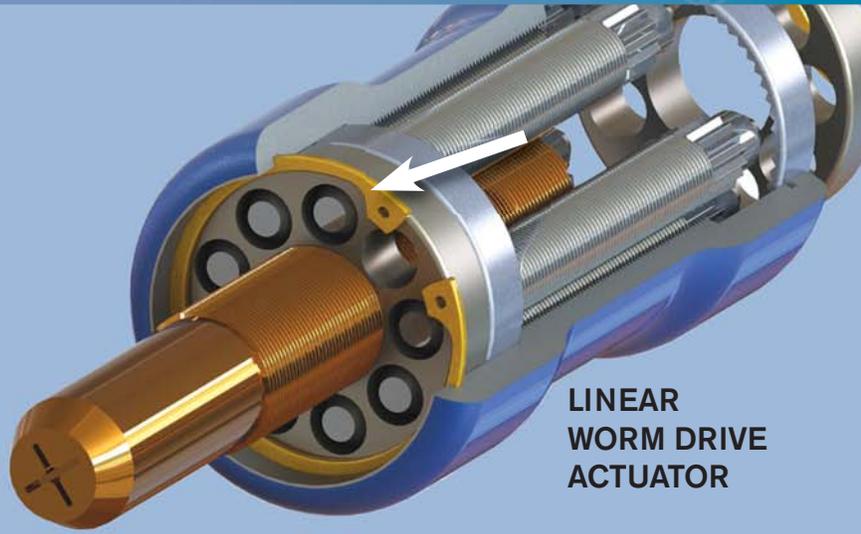
NST
Single Turn
Wave Spring
Narrow
Inch



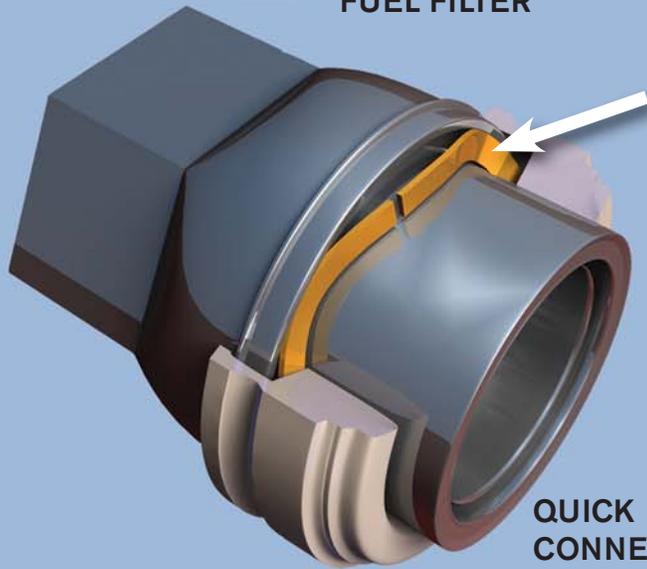
For spiral retaining rings, spring steel (SAE 1070-1090) and AISI 302 stainless steel materials are usually requested for the aerospace industry. 17-7PH Cond. CH900 is the preferred stainless steel for wave springs. Both stainless parts are often passivated to AMS2700. For military applications, cadmium plating of carbon steel is often requested, as well as Black Oxide for camouflage. For questions concerning materials or finishes, please contact our technical sales department: tech@rotorclip.com or +1 732-469-7333.



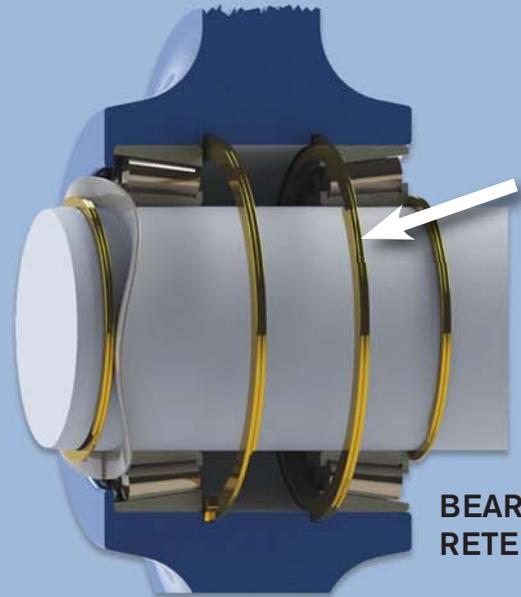
FUEL FILTER



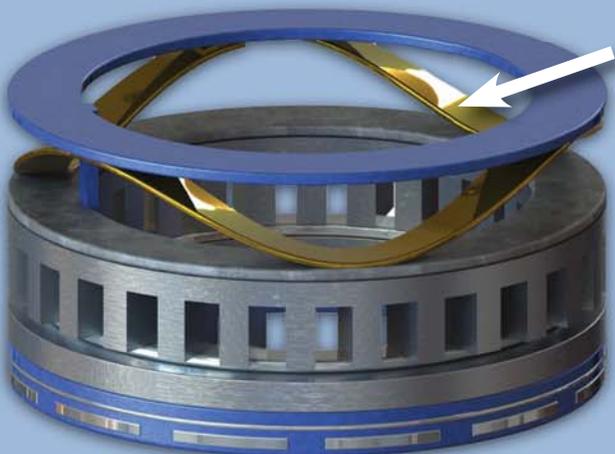
LINEAR
WORM DRIVE
ACTUATOR



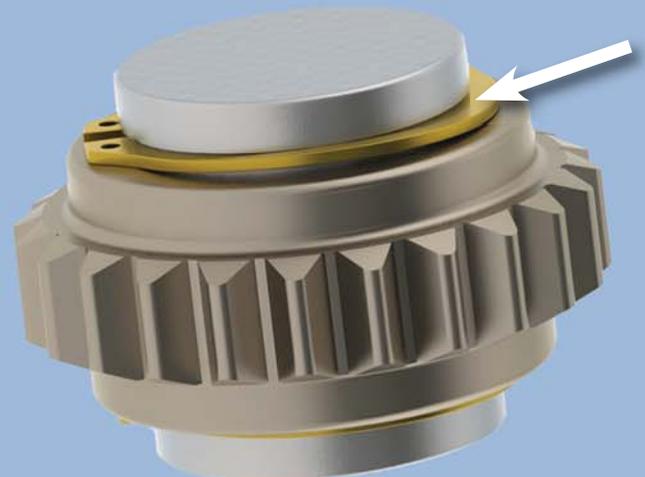
QUICK
CONNECTOR



BEARING
RETENTION



ULTRASONIC MOTOR



GEAR END-PLAY TAKEUP



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