

## ***Tough Guy Tech Tips.***

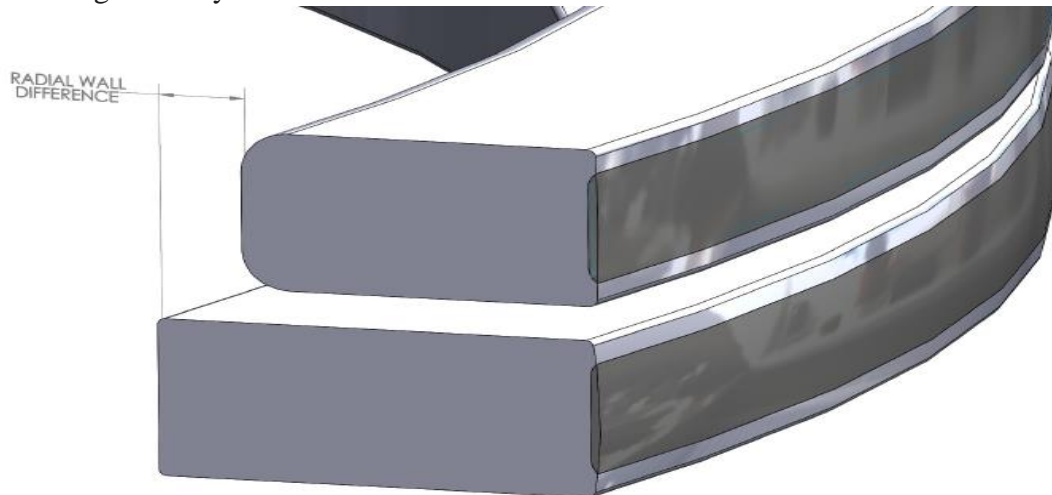
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### **Hastings Manufacturing Company Launches New Steel Upper Compression Rings**

Hastings Manufacturing Company, a 100-year old piston ring manufacturer, is adding steel upper compression rings to its extensive assortment of piston ring sets. The use of steel in the upper compression has many advantages. Steel provides 35% more strength, weighs 30% less and increases the resistance to side wear which is observed on the newer model engines. Another feature from the increased steel strength is the insensitivity to breakage during improper ring installation.

The increased strength of steel over grey cast iron means that we can achieve necessary tension with less weight. This increased strength feature allows Hastings Manufacturing to produce high quality rings with reduced radial walls. Increased strength, reduced radial wall and lighter weight all improve the performance of the compression ring. The newer engines have higher RPMs and lighter rings are more stable in the groove. Improved sealing is achieved by the steel compression rings conforming to the cylinder better.



Original equipment piston ring grooves and ring designs take into consideration the ring back clearance. It is thought that minimal ring back clearance improves overall performance of the engine. The power stroke gases energize the compression ring increasing the pressure against the cylinder wall, decreasing blowby and increasing power. The concern that increased ring back clearance will adversely affect engine performance has been dismissed by engine testing. In summary, modern engines are insensitive to increased ring back clearance.

The important features of piston rings is the correct axial width and optimal gap. Hastings rings are made with the correct axial width to make sure the correct side clearance is achieved, typically in the .0015" - .0025" range. Our customers will not be affected by changing from a cast iron top ring to a steel top because Hastings rings have adequate side clearance allowing the compression gases to energize ring to operate properly. In summary, you can replace cast iron top rings with carbon steel and get all the benefits we've discussed in this bulletin.

For additional information contact:

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