

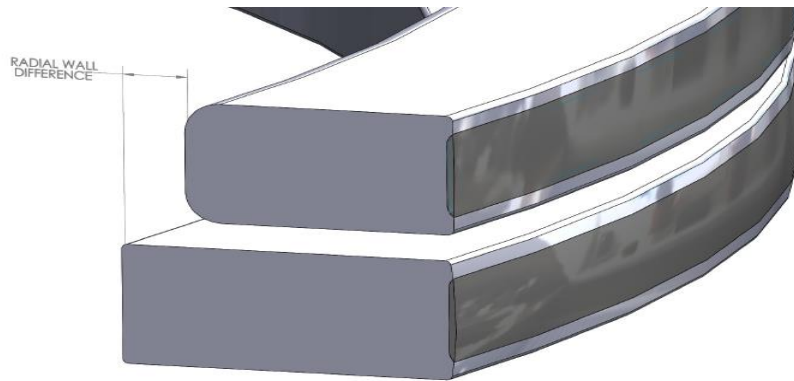


November 2015

Hastings Expands Steel Plasma Sprayed Molybdenum Upper Compression Rings

Hastings Manufacturing Company, a 100-year piston ring manufacturer, is expanding steel plasma sprayed molybdenum upper compression rings to its extensive assortment of piston ring sets. Since 1992, Hastings has been manufacturing steel upper compression rings; moving forward even more sizes will be supplied in steel with plasma sprayed molybdenum. 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 necessary tension can be achieved 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. Newer engines have higher RPMs and lighter rings that 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 blow-by 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 are 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. Customers will not be affected by changing from a cast iron top ring to a steel top ring because Hastings rings have adequate side clearance allowing the compression gases to energize the ring to operate properly. Customers can replace cast iron top rings with steel top rings and get all the benefits conveyed in this bulletin.

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P/N	TYPE	GAGE	WIDTH	WALL
46024	335	3.3400	0.0575	0.122
43611	335	3.3850		0.129
48050	335	3.5500		0.130
48052	335	3.5700		0.130
48053	335	3.5800		0.130
48054	335	3.5900		0.130
32583	335	3.6625		0.130
42684	335	3.6825		0.131
46035	335	3.6925		0.131
33681	335	3.1900		0.135
32181	13	3.0000		0.136
31075	335	3.4450		0.136
46892	335	3.8100		0.137
48100	335	3.9175		0.138
48356	335	3.9375		0.138
46926	335	3.7800	0.0575	0.145
46927	335	3.8000		0.145
46928	335	3.8100		0.145
48357	335	3.9475		0.150
43663	335	4.0000		0.150
43664	335	4.0200		0.150
43665	335	4.0300		0.150
43666	335	4.0400		0.150
41656	327	3.6625		0.155
31267	327	3.5050		0.159
45033	327	3.8750		0.163
34650	327	3.7660	0.0775	0.170
34652	327	3.7960		0.170
34653	327	3.9100		0.178
31324	327	4.0000		0.182
31278	327	4.0200		0.183
31325	327	4.0300		0.183
31762	327	4.0400		0.183
32429	327	4.0600		0.185
36180	327	4.2500		0.193
34660	327	4.2800		0.194

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34661	327	4.2900		0.194
42763	335	3.9525	0.0620	0.156
44219	336	4.0300		0.183
44220	336	4.0350		0.183
44222	336	4.0400		0.183

