



KB HYPEREUTECTIC PISTONS

Keith Black is serious about pistons... Are you?



KB high performance pistons come complete with Hastings chromoly piston rings. Pistons are manufactured of High-Strength, T-6 heat treated, 390 hypereutectic cast aluminum alloy (with 16% silicon levels) and it works extremely well. The result is that KB pistons can be run with the tightest clearance in the industry, less than .001" piston-to-wall clearance on street bikes(!), without problems. This will give increased life, and hardly any piston noise. Supercharged, nitrous and other race engines will need upto a minimum clearance of .0025" for the most extreme supercharged drag bikes, which is still very tight for this application. KB pistons make more power because the KB alloy transmits heat slower than other piston alloys, this helps reflect heat back into the combustion process. The top rings will run hotter and will need additional ring gap, the other rings will not need extra clearance. The increased compression ring gap does not effect ring efficiency or oil control because normal ring gaps are realized at operating temperatures.

In general ignition timing must be retarded 2-4°, since combustion heat is not wasted, to make maximum power.

All KB Evolution pistons, in stock sizes, do not need re-balancing. All Shovel and Panhead engines pistons will require re-balancing. The average KB pistons will be around 140 grams lighter than stock, most big-bore pistons are approximately 100 grams lighter than anything else on the market today. The weight of a front and rear piston set are kept within +1 to -1 gram unlike some other, including high performance, piston manufacturers. KB is the best piston you can buy for a reasonable price.

Note: All piston information regarding fitment, specifications, dimensions, weights etc. that are mentioned are provided by KB Performance Pistons. It is always advisable to double check any and all specifications and clearances before final installation.

KB HYPEREUTECTIC PISTONS - SUGGESTED CLEARANCES

Note piston ring clearance: Following clearance information is for use with KB's Hypereutectic pistons only!

Top compression rings will need additional clearance. Ring end gap calculation factor is the ring gap per inch of bore.

Example: 3.5" bore 'street normally aspirated' = 3.5 (bore) x .0065" (ring factor) = .023" top ring gap.

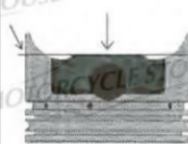
Second ring end gaps should not need extra clearance, but to check multiply the bore size by .004" factor for minimum ring gap.

Note piston clearance: All KB pistons come with 'built-in piston to wall clearance'. All pistons up to 4,100 are 0.0015" smaller and pistons larger than 4,100 are 0.0020" smaller than their given oversize. Except for STD size pistons, which have 0.0010" built-in clearance. This is done so STD size cylinders can be honed +0.001" over, thus giving a clearance of 0.0015". However, measuring pistons, prior to boring cylinders, absolutely remains the required check to failsafe achieve the desired tolerance.

Suggested piston to wall clearance show realistic minimum tight fit and maximum loose fit clearance for all KB hypereutectic pistons. When measuring coated pistons, skirt coating must be removed, at the measuring points, to obtain correct readings.

Application	Top Ring end gap calculation factor	Piston clearance alu. cylinders	Piston clearance cast iron cylinders
Street normally aspirated	.0065"	.00075" - .00150"	.0010" - .0015"
Street nitrous / supercharged	.0080"	.0015" - .0025"	.0020" - .0025"
Flat track gasoline	.0080"	.0010" - .0020"	.0015" - .0025"
Flat track alcohol	.0060"	.0010" - .0020"	.0015" - .0025"
Drag gasoline	.0075"	.0010" - .0020"	.0015" - .0025"
Drag alcohol	.0065"	.0010" - .0020"	.0015" - .0025"
Drag Super charged / nitrous gas	.0095"	.0015" - .0030"	.0020" - .0030"
Drag supercharged alcohol	.0085"	.0010" - .0020"	.0015" - .0025"
Drag supercharged fuel	.0115"	.0020" - .0030"	.0025" - .0035"

MEASURE PISTON AT BALANCE PAD HEIGHT



INCHES X 25.4 = MM

TECH-TIP 1

FAQ Keith Black pistons

Question: What does 'Compression height' exactly mean, and how is it measured?

Answer: The compression height is the height of the piston measured from the middle of the wrist pin (piston pin) to the top of the piston, excluding any crown that might be on top of the piston.

TECH-TIP 2

FAQ Keith Black pistons

Question: What do the figures, that are mentioned with each piston, +1.5cc or -18cc and such mean?

Answer: These figures give you information about the top (dome) of the piston. Everything that 'sticks out on top' (above the top of the compression height) will be given a -18cc (minus) figure. This are the cc's that are basically 'taken away' from the combustion chamber, thus increasing compression ratio. For instance a stock Shovel piston has a -30cc dome.
A + figure, like +1.5cc, is given where valve pockets or a negative dome are adding cc's to the combustion chamber (everything below the top of the compression height), thus lowering compression ratio. Note that both 'plus' and 'minus' figures only tell you something about the specific piston that is mentioned. Usefull when calculating final compression ratio's so you will know what gasket thickness, what base plates, what stroke and what cylinder lengths must be used to get the specific custom engine you desire. All figures are based on one piston.

TECH-TIP 3

FAQ Keith Black pistons

Question: On what are piston specifications based?

Answer: *Panhead & Shovelhead figures are based on a 135cc combustion chamber. (1340cc Shovel combustion chamber may vary from 135-165cc).
*Evolution B.T. figures are based on the early combustion chamber of 78-80 cc. Later heads (93-99) have combustion chambers of upto 86cc.
*Twin Cam figures are based on the stock 84cc combustion chamber.
*Stock bore piston compression ratio's are based on stock gasket thickness.
*Big Bore specialty pistons compression ratio's are what you can achieve, not what they actually are in a certain engine. Setting deck height to a minimum, gasket thickness, headwork, all play a part in achieving the final compression ratio.

