



IPD TECH BULLETIN

3114, 3116 & 3126 Piston clearance

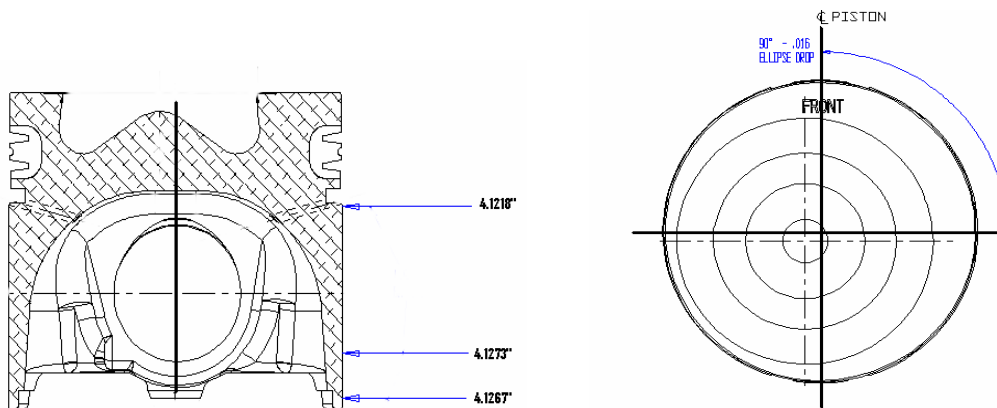
MAY 2006

IPDTB-0010

Over the last few months the question of piston clearance between the piston and cylinder wall has been raised several times when working on a 3114, 3116 or 3126 engine. Most commonly the question is “what is the diameter of your piston”? This is so the technician can calculate the clearance by subtracting the piston diameter from the bore size to get the amount of clearance the piston will have. While this seems to be a straightforward question, the answer is not that simple. Pistons used in today’s heavy duty markets are elliptical, and not truly round. The ellipse of the piston is by design to allow for additional thermal expansion in the heavier areas on the piston.

These elliptical designs make it much harder to determine the clearance since the measurement depends on the location where it’s measured on the piston.

In the examples below you can see that the dimension vary depending on the position up from the bottom of the skirt as well as in rotation compared to the pin bore. Directly at the pin bore the piston measures 0.016” smaller than at 90° on “X” axis. This forms the elliptical profile around the circumference of the piston and a barrel profile from top to bottom of the piston skirt.



(Dimensions & scale shown are reference only for this example and are not actual)

As you can see, piston technology and manufacturing techniques have become considerably more sophisticated in advanced engines. IPD prides itself in producing state of the art pistons, and as long as the cylinder bore is correct you can install them with confidence.

Continued on page 2...

IPD

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IPD produces many of the 3114, 3116 & 3126 pistons in both standard and .50MM oversize. Often a block can be bored oversized much more economically than being sleeved back to standard. Finish bore specifications for these engines are:

ENGINE MODEL	STANDARD BORE SIZE	.50MM O/S BORE
3114 / 3116	105.025 +/- 0.025 mm	105.525 +/- 0.025 mm
	4.1348 +/- 0.001"	4.1545 +/- 0.001"
3126	110.025 +/- 0.025 mm	110.525 +/- 0.025 mm
	4.3317 +/- 0.0010"	4.3514 +/- 0.001"

IPD currently offers the following piston kits for these engines. Kits indicated with a "B" suffix are .50mm oversized. *Please check availability before boring your block!*

3114 & 3116

3126

Item Number	Item Description	Item Number	Item Description
PK1014495	PISTON KIT, STD	PK1334983	PISTON KIT, STD
PK1014495B	PISTON KIT, .50MM	PK1334983B	PISTON KIT, .50MM
PK1051710	PISTON KIT, STD	PK1335044	PISTON KIT, STD
PK1051710B	PISTON KIT, .50MM	PK1335044B	PISTON KIT, .50MM
PK1051720	PISTON KIT, STD	PK1504621	PISTON KIT, STD
PK1051720B	PISTON KIT, .50MM	PK1504621B	PISTON KIT, .50MM
PK1077545	PISTON KIT, STD	PK1646556	PISTON KIT, STD
PK1077545B	PISTON KIT, .50MM	PK1723282	PISTON KIT, STD
PK1077553	PISTON KIT, STD	PK2382729	PISTON KIT, STD
PK1077553B	PISTON KIT, .50MM		
PK1077563	PISTON KIT, STD		
PK1077563B	PISTON KIT, .50MM		
PK1154124	PISTON KIT, STD		
PK1154124B	PISTON KIT, .50MM		
PK4P2990	PISTON KIT, STD		
PK6I1144	PISTON KIT, STD		
PK6I1144B	PISTON KIT, .50MM		
PK6I1210	PISTON KIT, STD		
PK6I1210B	PISTON KIT, .50MM		
PK6I4248/13	PISTON KIT, STD		
PK6I4248/14	PISTON KIT, STD		
PK7C5668	PISTON KIT, STD		
PK7C5668B	PISTON KIT, .50MM		
PK7E3428	PISTON KIT, STD		
PK7E3428B	PISTON KIT, .50MM		
PK9Y7452	PISTON KIT, STD		
PK9Y7452B	PISTON KIT, .50MM		

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