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TECHNICAL REPORT

Thickness of head gasket
depending on piston overheight

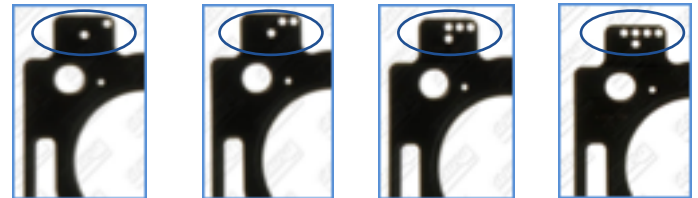


PURPOSE

To inform about **how to identify the thickness of the head gasket** depending piston overheight.

INTRODUCTION

For the repair, especially in diesel engines, **manufactures usually supply head gaskets with different thicknesses**. These are usually marked with notches, to differentiate the thickness of each gasket.



10157300
1.25 mm

10157310
1.30 mm

10157320
1.35 mm

10157330
1.40 mm

Examples of notches in head gaskets

Sometimes, the notch system may vary from one Manufacturer to another one, so the customer might face the problem of not being able to know what thickness he exactly needs for the repair.

For this reason, **Ajusa informs about the piston overheight in those head gaskets they may have different thicknesses**.

WHAT IS OVERHEIGHT?

We call **overheight** of the piston to the distance from the head of the piston to the block.

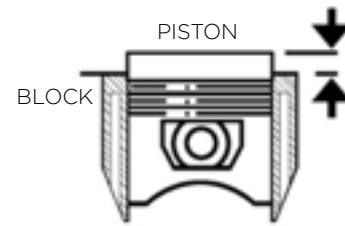
	1	2	3	4	5	6
Reference	10157300	10157310	10157320	10157330		
Piston	0.470 - 0.604	0.605 - 0.654	0.655 - 0.704	0.705 - 0.754		

Example of how to choose the right thickness.

Distance X varies between engines, even there are differences from one piston to another in the same engine, since this measure **depends on the manufacturing tolerances and assembly of the necessary components** (piston, rod, crankshaft...)

To install a wrong gasket with a lower thickness **increases compression**, and consequently, a new break down, and in some cases it is possible the valves to crash with the piston. In the same way, to **install a gasket with a bigger thickness will make the engine decrease performance**.

So, it is always necessary to **check the overheight of the piston** whenever we are using a gasket with a different number of notches to the original and mostly when the block is resurfaced or when any component (piston, rod, crankshaft...) is replaced.



Distance X shows the overheight of the piston respect the block. This distance will be maximum when the piston is at the Top Dead Center (TDC), that is, the highest point it can reach.

MEASUREMENT

1 To measure we will need a comparing gauge clock with the flat support on the block.



Place the first piston to measure on the TDC, **2** for this:

- a) Use the marks to place each of them on the TDC if the engine has them.
- b) Or use a **comparing gauge clock placed on the head of the piston** and the support on the block, so that, when you turn the crankshaft clockwise we can detect the maximum value indicated by the clock, stopping the turn when the piston is at that position.

3 Once the piston is on the TDC, place the comparing gauge on the optimal area for measuring, that is, at both sides of the head of the piston aligned with the connecting rod to avoid balancing. **Place the comparing gauge with value "0"**.

4 Displace the comparing gauge/support kit on the block so that the clock probe goes from the head of the piston (position A) to the block. Write down the value.



5 Repeat steps 3 and 4 in position B. Get the average between the 2 values (A and B) in the measurement.

6 Repeat the process for all the cylinders. The highest average value of all will determine the thickness of the gasket to use.



OVERHEIGHT VALUES RANG