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# TECHNICAL REPORT

Valve stem seals in  
Honda engines



## SCOPE

Indicate the function of a **valve stem seal**, as well as the differences and position where it should be installed on Honda engines.

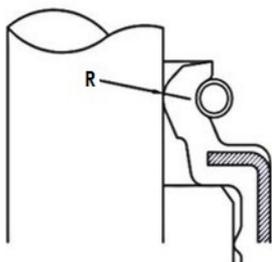
## DESCRIPTION

The **main function** of a valve stem seal is to dispense a small amount of oil to the area of the valve guide to **lubricate the sliding surface** between the guide and the valve stem.

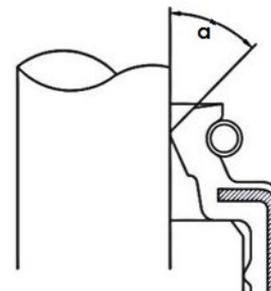
The amount of **oil needed depends on the temperature** of the area that we wish to lubricate, a larger amount being necessary in the areas where the temperature is higher. For this reason, the exhaust valves need a larger amount of oil due to the higher temperature compared to the inlet valves.

The amount of oil we dispense is controlled by **2 design dimensions of the valve seal**, the radius and the contact angle of the sealing lip, as follows:

### RADIUS



### LIP CONTACT ANGLE



↑ Sealing lip radius (R) → ↑ Lubrication  
↑ Sealing Lip contact angle (a) → ↓ Lubrication

## VALVE STEM SEALS ON HONDA ENGINES

In the engines of this famous Japanese brand it is very common to find two different part number of valve stem seal, one for inlet valves and one for exhaust valves. This is the case of the valve stem seals that correspond to parts number 12014200 and 12014300 of Ajusa.

AJUSA PART NUMBER	OEM PART NUMBER	POSITION	SPRING COLOUR	DIMENSIONS
12014200	12210-PZ1-003	Inlet	Gray	5x10.9x10
	12210-PZ1-004			
	12210-P45-G01			
12014300	12211-PZ1-003	Exhaust	Black	5x10.9x10
	12211-PZ1-004			
	12211-P45-G01			

Regarding the main dimensions and materials of manufacture, both are identical. **The difference between them is in the sealing lip**, changing the radius and the contact angle to dispense a larger amount of oil in the exhaust valves.

Due to this feature it is so difficult to observe at first sight, **both valve stem seals differ in the colour of the spring from the sealing lip**, being black for the exhaust valves and gray for the inlet valves.

It is very **important not to change the position of each valve stem seal**, since in the case of installing the valve stem seal on an exhaust valve, it is possible that the valve exhaust guide does not have the correct amount of oil to lubricate it and wear will occur.



12014200 INLET



12014300 EXHAUST