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# TECHNICAL REPORT

Cylinder head gaskets  
with fire rings of different  
diameters



## SCOPE

The purpose of this technical report is indicate to customer that there can exist cylinder head gaskets with **fire rings with different diameters** for a specific engine depending on it **had the cylinders grinded or not.**



## DESCRIPTION

It is possible that, in some cases, it is necessary **to make a grinding of the engine cylinders.** This peculiarity can exist in **compact block engines.** These types of engines are those in which cylinders are machined inside of the block.

The **main reasons** it could have to make a grinding of the cylinders are:

Wear due to piston **fire rings friction** over cylinder wall. This can produce a taper inside of the cylinders and oval of the inside diameter.

When this type of wear **exceeds 15 mm** (or the measurement indicates by the manufacturer) it would be advisable to make a grinding of the cylinders.

Damage due **to hit of the piston** to cylinder walls. In this case, cylinder wall can be damaged, and this is the reason why it would be necessary to make a grinding.

During grinding process, we must consider:

- To measure the **wear, taper and oval** of the cylinder walls with a Bore Gauge.
- To verify that **manufacturer allows the grinding** and He has the measurements and parts which are necessary to repair.

Manufacturer can accept until **four grindings, of 2 mm each one** as well as piston sets, and piston fire rings improved to new grinding measures.

When cylinders are grinded, it is time to **burnish them** to get the tolerances indicated by the manufacturer.



## CONCLUSION

Once cylinders have been grinded, their **diameters will be higher**, being these ones of the measurements indicated by the manufacturer.

For this reason, it will be necessary to put a **cylinder head gasket** with a higher diameter fire ring.

## APPLICATIONS

Cylinders grinding is common in **Mercedes group engines**. For this reason, to Mercedes cylinders head gaskets with a definite thickness, we will be able to find **gaskets with different diameters** of fire ring.

Here we can see an example to engine **Mercedes - Benz OM646.820 2148 c.c.**

	$\varnothing = 89 \text{ mm}$	$\varnothing = 89,5 \text{ mm}$
$e=1,10 \text{ mm}$	 10188300   0 mark	 10188400   2 marks
$e=1,30 \text{ mm}$	 10188310   1 mark	 10188410   3 marks