

104

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