

Pressure Measurement Film

PRESCALE

Application Examples

[No.6]

Measured Object



Cylinder Head Gasket

Uses

Increasing design efficiency and quality by verifying gasket seals whenever necessary.

Benefits

Higher seal quality

Production loss reduction

Improved development efficiency

Industry

Automobile (engine design, development and production)

Applications

Checking the seal of cylinder head gaskets

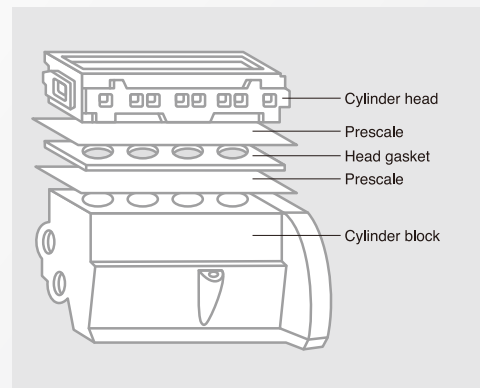
Challenges

Head gaskets are designed for each type of automobile engine (1 engine / 1 Head gasket). There was no method for confirming that the combustion gases, cooling water and oil of an engine were properly sealed inside the cylinder of prototype and new production product of cylinder head gasket other than by confirmation by operating tests.

Measurement

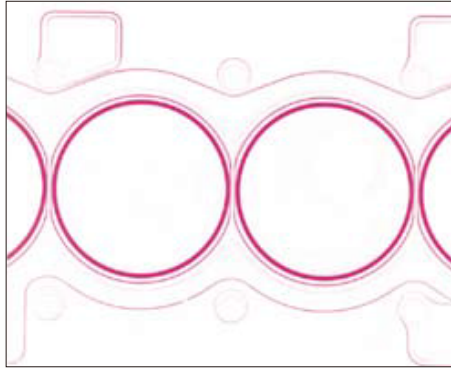
Used Product: Prescale (Low Pressure LW, Medium Pressure MS MW, High Pressure HS)

Prescale sheets and the gasket are inserted in the order of Prescale/gasket/Prescale between the cylinder block and cylinder head, after which the head bolts are tightened normally. In the next step, the head bolts are loosened and the cylinder head is removed. Then, the Prescale sheets are removed and a determination is made as to whether the necessary areas were properly sealed. (Confirmation is made by determining whether the color of the Prescale is uniform, or if deviations are present.) (Reference JIS D3105 Automobile Cylinder Head Gaskets)

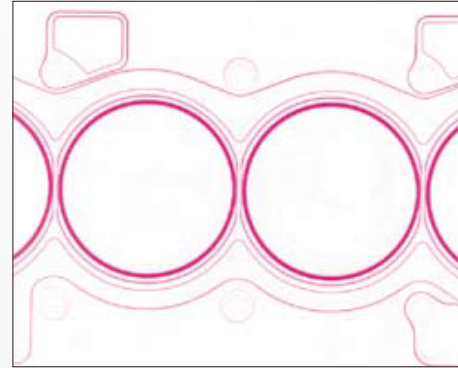


Results (images)

● Not good



● Good



Benefits of Prescale

● Time Savings

Design efficiency can be significantly streamlined and improved over usual empirical trial and error testing methodology.

● Quality improvement

The option of using Prescale for gasket performance confirmation, when required, can eliminate the uncertainty often experienced when waiting for results. This contributes to streamlining design and development, and can facilitate a reliable supply of cylinder head gaskets.

Without using Prescale

Even if a cylinder head gasket is designed with uniform thickness, a uniform seal may not necessarily be achieved due to pressure differentials near the head bolts. Thus, without Prescale, **seal performance cannot be confirmed** until actual engine operation tests are conducted.

Using Prescale

Prescale makes it possible to evaluate seals under actual usage conditions without actually operating the engine. It also makes it possible to confirm quality stability after long-term engine operation and driving tests. Furthermore, the ability to conduct periodic confirmation tests during gasket production **can contribute to increased efficiency and ensure product quality.**

*The specifications and performance data contained in this catalogue are subject to change without notice.