

***Incorrectly fitted piston rings can give rise to several types of damage.***

When fitting piston rings on new pistons, the following steps need to be taken to achieve optimal results and to avoid damaging the rings, pistons, and cylinder bore. First of all, ensure that you have the correct piston ring set for the piston in question. Ensure that the rings are the correct size and design, and follow the instructions on the packaging.

Piston rings are always fitted with the labelled side (e.g., with the marking "Top" or the MAHLE logo) facing upward, i.e., toward the piston crown. Piston ring pliers should be used for safe installation. They ensure that rings are not overstretched, bent, or otherwise damaged during installation. Additionally, they protect the surface coating from damage and the rings from breaking by preventing excessive bending. Pistons and rings should be

generously lubricated with clean oil before installation. The piston rings can then be fitted sequentially from bottom to top (see Figure 1: A, B, C). The rings should then be rotated to check that they move freely and then positioned with their ring gaps offset from each other by 120°.

**Oil control rings**

In the case of coil-supported spring lock washers, the spring joint (the butt end with connector wire) must be positioned at 180° to the ring gap. If the coil spring has a Teflon jacket, it should end at the ring gap.

Additional care is required when fitting steel rail rings (3S rings). After inserting the expander spring, ensure that the color markings on the ends of the spring are visible and do not overlap. Then the upper and the lower rails should be fitted with the gaps toward the pin bore.

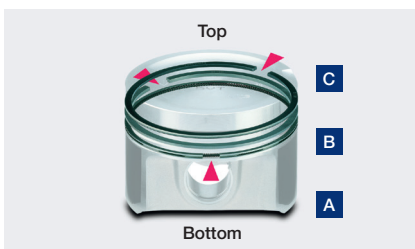


Figure 1: Observe the assembly sequence (A, B, C) and position the ring gaps at 120° to each other.



Figure 2: Fit the rings using suitable piston ring pliers.



Figure 3: Both color markings on the rails must be visible.

**Important!**

Bent, overstretched, or otherwise damaged rings must not be fitted under any circumstances. Chrome-plated piston rings must not be used on chrome-plated cylinder surfaces. When installing piston rings on used pistons, the ring grooves must be inspected for contaminants, wear, and damage.



More information