

### Issue no. 08/2018: Piston dimensions and installation clearance: what you need to know

MAHLE pistons are always delivered ready-to-assemble and with mounted piston rings. Piston diameter, installation clearance, and installation direction are indicated on the piston crown—together, they give the cylinder diameter.

Example based on figure 1:

Piston Ø	76.475 mm
+ Installation clearance	+ 0.035 mm
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= Cylinder Ø	= 76.510 mm

When it comes to taking measurements from coated pistons, there's often some uncertainty, because the thickness of the running surface (0.015 to 0.020 mm) isn't taken into account. If the piston diameter is measured at the skirt (see figure 2), it will thus be approximately 0.030 to 0.040 mm greater than indicated on the piston crown. This has no impact on the machining required, since running surface coatings primarily serve to run in the engine smoothly and adapt to the cylinder diameter during this phase.

In comparison with aluminum pistons, the thickness of the coating in steel pistons of the same diameter is generally thinner and the installation clearance smaller.



Figure 1: Information on the piston crown—diameter, installation clearance, and installation direction (arrow)



Figure 2: The diameter is measured at a right angle to the pin axis on the skirt.



Figure 2: The diameter is measured at a right angle to the pin axis on the skirt.

**IMPORTANT!** Pistons should always be coated with fresh engine oil before mounting and must be installed with a suitable tool (e.g., tightening strap and mounting sleeve) to avoid damage to the piston rings.