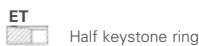


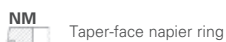
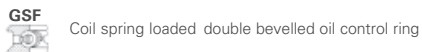


Piston ring sets

Sealing rings



Oil control ring



Recommendation for the installation of piston ring sets

The ring grooves must be cleaned carefully before the rings are installed. It is essential to make sure that neither the groove walls nor the radiuses at the bottom of the groove are damaged.

The rings are **installed** with suitable piston ring pliers, starting with the lowest ring. Excessive opening of the rings is to be avoided, since this could lead to deformation of the rings. If the rings are deformed, they are no longer able to provide a perfect seal.

It is of vital importance that the TOP mark be observed. Rings that have the TOP mark are to be fitted with the marking facing upwards towards the piston crown. In the case of coil spring loaded rings, the spring joint (the spring end with the connector wire) must be positioned at 180° to the ring gap. If the coil spring has a teflon coil cover, care must be taken to ensure that this cover is over the ring gap.

Special care is needed for the installation of steel rail rings (3S rings). After the spring has been loaded, the rails are to be mounted so that rail end gaps point towards the pin hole. When the upper rail is being installed, the ends of the spring must be held together so as to prevent overlapping (pay attention to the colour marking when doing this). After this, the lower rail is to be installed.

In the case of pistons with rotation prevention in the ring grooves, care must be taken to ensure that the ring gaps are positioned alongside the securing pins.

After the rings have been installed, the ring gaps are to be spread evenly around the circumference (for example at 120° intervals for a 3-ring piston).

The **groove clearance** is to be checked after the installation of the rings.

Clearances of up to 0.100 mm are acceptable. If the clearance is greater than this, the piston must be replaced.

The ring sets allow for a certain amount of wear on the cylinder contact surface. This should not exceed a value of approx. 0.100 mm (off the cylinder diameter). If there is greater wear, a new cylinder liner is to be used or the cylinder bore is to be re-bored and equipped with a suitable oversize piston.

Chromium-plated piston rings must not be used in chromium-plated cylinder liners.