

Issue no. 01/2017: Piston damage due to broken piston cooling nozzles

Piston seizing or similar damage occurring after crank mechanism repairs can be caused by a damaged piston cooling nozzle.

The damage scenarios are usually the same:

- The piston has scoring and seizing marks on the skirt.
- The piston crown, ring belt, and top land are melted or scorched.
- The cylinder liners are discoloured in places, or even cracked.

Quite often, this damage occurs when the piston and connecting rod are removed and fitted, and the piston cooling nozzle remaining in the engine block is inadvertently bent or broken.

This impedes, or altogether prevents, engine oil cooling of the piston crown during operation—and the piston and cylinder end up overheating.



Figure 1: Overheated Ferrotherm piston (steel piston crown and aluminium skirt) showing seizing marks, with cylinder liner



Figure 2: Cooling nozzle fitted (top) and broken off (bottom)

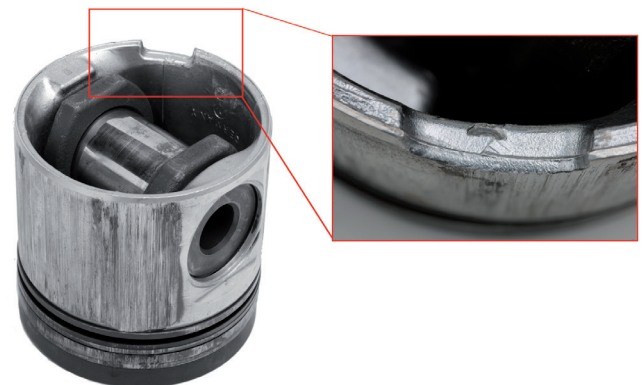


Figure 3: Noticeable marks on piston skirt indicate cooling nozzle impact

IMPORTANT! Always remove the cooling nozzles when carrying out any repairs requiring removal and fitting of the piston and connecting rod. Make sure the cooling nozzles are properly aligned and in good working order when fitted; gasket residue and deposits may clog the nozzles and should therefore be thoroughly removed.