

Title: Recesses and/or Excavations with Piston Rings

Abstract: Recesses and or Excavations for example dimples or pressure filling grooves as used in motorsport with 4-stroke small bore engines could be advantageous to large two-stroke marine engines. Grooves can be ground into the top or bottom side of the piston ring groove or on the top or bottom side of the piston ring itself. Also grooves on the back of the ring groove or on the vertical sides of the piston rings are possible.

One target of such grooves is to increase the cross section of the area that guides combustion gas behind the top piston. An increased cross section of the gas guiding path prevents that combustion gas can act first on the piston ring running surface which might lead to blow by of combustion gas and could possibly damage the lube oil film. With such grooves a more uniform temperature and pressure distribution behind the piston rings and less thermal load on the ring lock can be achieved.

Other effects of grooves are improvements concerning deposits and lubrication. Washing effects can prevent or reduce the build-up of deposits during service of engines.

Grooves in the piston ring and piston ring groove system are subject to testing at WinGD.