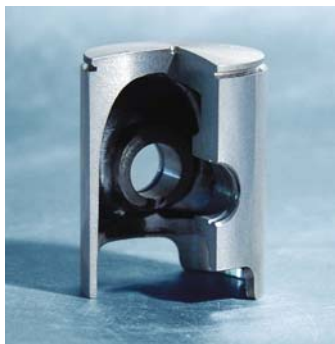


Types

Two-stroke pistons

are subject to strong mechanical and thermal loads due to the design principle of two-stroke engines. Special aluminium alloys are used so as to meet these requirements in the best possible way.



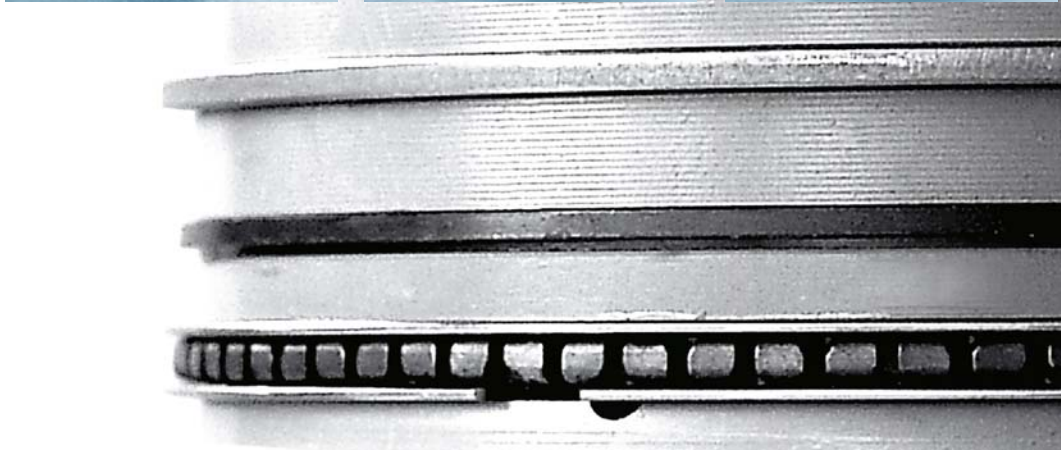
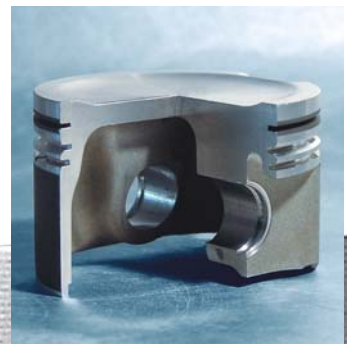
Cast solid skirt pistons

distinguish themselves with a long operating life and economic viability for gasoline and diesel engines. In these pistons, the piston crown, ring zone and skirt make a robust unit. Therefore the possibilities for use range from a model engine to a large engine.



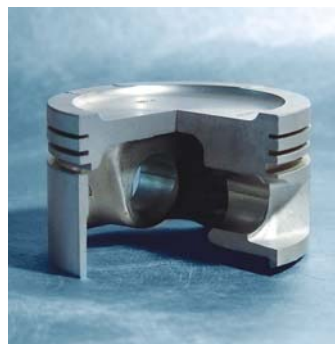
Forged solid skirt pistons

have increased strength due to the manufacturing process. This means that smaller wall cross-sections and lower piston weights are possible. These pistons are installed, above all, in mass-produced engines that are subject to heavy loads, and in engines for racing sports.



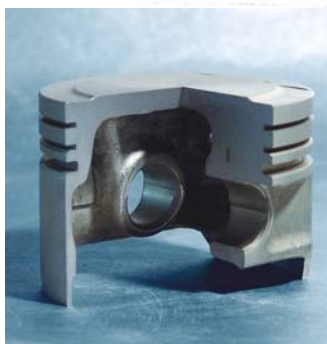
AUTOTHERMIK®-/HYDROTHERMIK® pistons

have cast steel strips and are slotted at the transition from the ring area to the skirt area. These pistons run very smoothly and are preferred for installation in car engines.



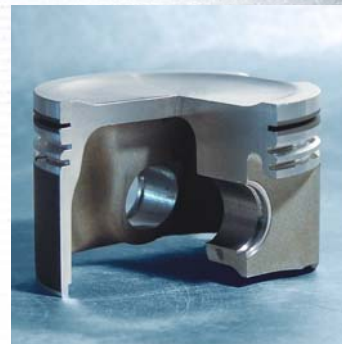
AUTOTHERMATIK®-/HYDROTHERMATIK® pistons

also have cast steel strips, but they are not slotted and so they make a uniform body with greater strength. They are preferred for installation in gasoline and diesel engines for cars that are subject to heavy loads.



ECOFORM® pistons with pivoted side core

Weight optimised pistons for passenger car petrol engines. As a result of a special casting technology these pistons offer low weight and high structural rigidity.



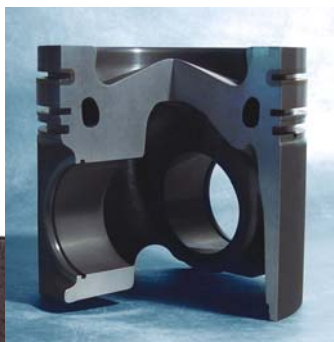
Ring carrier pistons with pin boss bushes

have a ring carrier made of special cast iron which is cast into the piston. This provides protection to the top ring groove from the wear and tear which diesel engines in particular are subject to. In order to make it possible to increase the loads to which the pin boss can be subjected, this piston has pin boss bushes that are made of a special material.



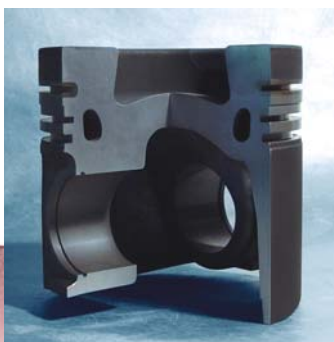
Ring carrier pistons with cooling gallery

are used in situations in which particularly high operating temperatures occur. In order to reduce the high temperatures – which are caused by the increased performance – in the piston crown and in the ring area, intensive cooling is done by circulating oil in the cooling gallery.



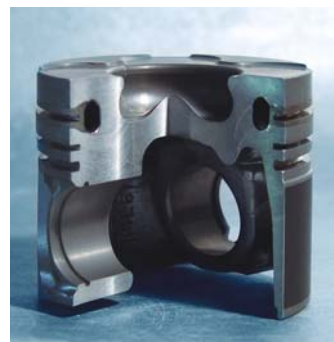
Ring carrier pistons with cooling gallery and crown reinforcement

are used for highly loaded diesel engines. For additional protection and in order to avoid cracking in the combustion chamber and the crown, these pistons have a special hard anodised layer (HA layer) on the piston crown.



Pistons with cooled ring carrier

have significantly improved heat dissipation at the first ring slot. This is achieved with a combination of ring carrier and cooling gallery, in which the two components are combined into one system in a special production process.



FERROTHERM® pistons

consist of a steel piston head and an aluminium piston skirt which have a moveable connection to each other via the piston pin. Due to great strength and low wear and tear, it is possible to achieve low exhaust emission values for diesel engines that are subjected to particularly high loads.



Technical terms

Pistons (dimensions)

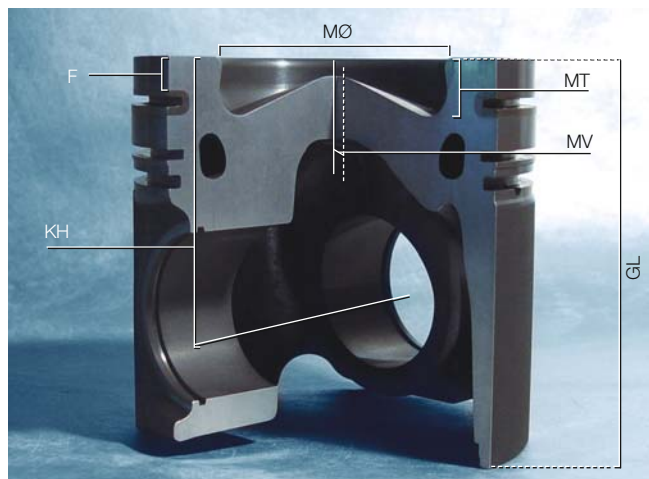
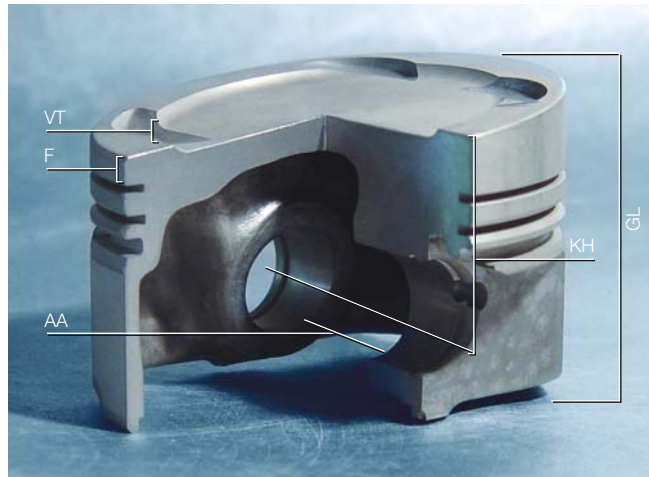
AA	= Distance between bosses
F	= Top land height
GL	= Total length
KH	= Compression height
MØ	= Combustion chamber diameter
MT	= Combustion chamber depth
MV	= Combustion chamber offset
ÜH	= Dome height
VT	= Valve recess depth

Types of semi-finished piston

F	= Squeeze-cast piston
KB	= FERROTHERM® piston
L	= Solid skirt piston
P	= Forged piston
V	= AUTO-/HYDROTHERMIK® piston/ AUTO-/HYDROTHERMATIK® piston

AK	= Recess for oil cooling nozzle
DRT	= Double ring carrier
KK	= Cooling gallery, in some cases with recess
RT	= Ring carrier

FERROSTAN®	= FERROSTAN®-coated
HA	= Hard anodised
C	= Graphite coated



Piston pins

Pin dimensions:

Outer diameter of pin x total length

FB	= Profiled pin
NB	= Pin boss bushing
S	= Shrink fit-/clamp type con rod
T	= Keystone con rod

