

Marine engine parts



piston skirt

Piston skirt

Piston skirt is the part below piston ring land; its function is to keep vertical position of piston during reciprocating action, which is leading part of piston. The skirt part slide with high speed in cylinder under side thrust action, so it is badly worn. When designing skirt part, it should have enough bearing area to reduce beta ratio and form oil film; assure right cylindrical shape of skirt part and keep minimal gap with cylinder; position pin properly to prevent piston inclining in cylinder.

To make piston skirt part with good leading action and good sealing property without increasing friction loss, piston skirt and inside cylinder should keep minimal space which changes with temperature. Transect of skirt is usually designed to be oval, long axis is perpendicular to piston pin centerline. Piston skirt enlarges in piston pin centerline direction while minishes in perpendicular direction when working.

When piston operating, the temperature is unevenly distributed along altitude direction, more near to the top, the temperature is higher, and temperature gradient of land ring is bigger than skirt part. So in order to assure small space and well-distributed, surface of piston should be designed in principle to be shape of taper or step type which have small upper part and large down part.