Reverse engineering is a kind of methods to design the diesel engine that use general design of diesel engine as the reference. One of the important part of diesel engine is piston and connecting rod, because it’s immediately connected to the combustion chamber which produce pressure and high temperature. In this design’s planning that uses four kinds of material (AlSi 12 CuNiMg forget, AlSi 12 Cu4Ni2Mg, AlSi 18 CuNiMg, AlSi 25 CuNiMg) in two models. Meanwhile the connecting rod uses two kind of materials (C-70 dan AlSi 1045) in a same model. The strongest of analysis result for piston AlSi 12 CuNiMg forget with the maximum stress is 113,5 N/mm² and 161.87 N/mm² in the hole’s model of ring oil area and the thermal stress is 25,773 Mpa, whereas the other model that not use the hole on ring oil area is 18,674 Mpa. The highest stress is on pin area and oil hole on ring oil area. Meanwhile the biggest stress of connecting rod is on cooling oil’s hole as 32,74 N/mm².

Keywords: Piston, Connecting Rod, Thermal Stress, Total Stress.
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