Optimization of engine exhaust duct

Project description

In large two-stroke Diesel engines, the exhaust valve housing is causing a significant flow resistance during scavenging, when replacing the combustion products with a fresh charge. The exhaust valve housing is followed by a diffuser. The design of the exhaust housing and diffuser geometry should have as high pressure recovery as possible during scavenging. In the project, a scaled experimental setup is constructed, where several diffuser geometries are manufactured using 3D printing technology. Flow patterns and pressure resistance are investigated for different housing designs. The flow typical has Mach numbers of 0.5 during the main part of the scavenging. Effects of compressibility should therefore be included in the study. The design of the experiment could be that the flow from the diffuser is directed to a tank with vacuum.

Industry partner: MAN Diesel

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