REMANUFACTURING
A CENTURY-OLD COLIBRI ENGINE

Customer Challenge
MRM Engines Revision Meijerink are experts at engine revision for classic cars, and they have given many classic engines a new lease of life. Spare parts are often no longer available for classic engines, and MRM are constantly finding better ways to produce spare parts. The cylinder itself is one of the most complex and expensive parts to produce, and beyond the expertise of most workshops. Until recently, the tooling alone could cost upward of £ 50,000 and take a year to develop. When the owner of a beautiful Colibri-T car from 1908 approached MRM for a new cylinder, they needed a better way to remanufacture this century-old engine.

Selected approach
MRM used the capabilities of 3Dealise to engineer and 3D print a sand mould directly without a pattern, and to remanufacture the cylinder using the same process and material as the original. A very precise 3D scan of the original cylinder was made, and the cylinder design was then reverse engineered using the scan data and drawings from the original workshop instruction manual. Any damage present in the original cylinder was digitally repaired in the 3D design before making the 3D sand print and casting the cylinder in cast iron. MRM used their decades of experience to machine the rough casting in their workshop, make all the fittings and deliver a beautiful running engine. MRM commented enthusiastically on the quality of the end result: “The casting is of really exceptional quality!”

Customer benefits
The key benefits of the approach are as follows:
• A very precise replica of the original cylinder was made as a result of high resolution 3D scanning and 3D printing
• Authentic surface finish achieved by using the same casting process as in 1908
• 90% Cost saving due to patternless production
• 80% Lead time reduction for the rough casting

MRM Engines Revision Meijerink are confident that this approach will benefit many other clients, and 3Dealise have produced 5 engines thus far for them from between 1908 and 1936.

MRM Engines Revision Meijerink – mrmbv.nl
3Dealise – 3dealise.com

Specifications
Project: remanufacturing a classic car cylinder
Material: cast iron
Pattern: not available, damaged original cylinder only
Batch size: 1
Lead time: 3 weeks (3D scanning, reverse engineering, sand mould engineering, 3D printing, casting, machining, fitting and finishing)