

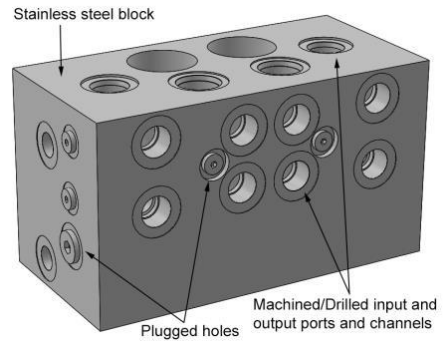
Light Weight Additive Manufactured Mining Components

Henrik Nilsson

Department of Design Sciences

Faculty of Engineering LTH, Lund University

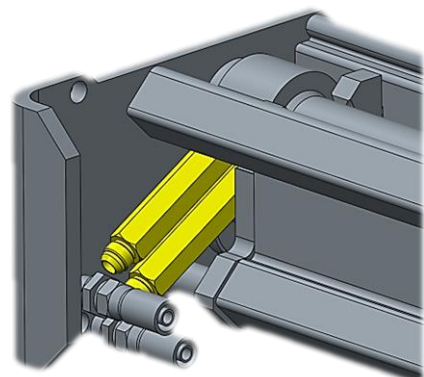
3D-printing can be used to create the next generation of mining parts. An advanced manifold, a pipe branching into several openings, was redesigned using the freedom for creativity that 3D-printing unleashes. The new design weighs 92% less and has improved performance. See figures to the top right. This shows that 3D-printing is not only for printing your own small figurines, even if that also shows the possibilities of 3D-printing.



3D-printing in combination with topology optimization, a way of finding the optimal shape of any design, open up even more doors for new generations of designs. Using these two tools a plastic component was created to replace an old metal design. The new plastic component weighs 78% less, is equally strong and cheaper to manufacture! This is what happens when old technology meets new. See figures to the left.

A last example, as if above wasn't enough to convince you of the power of 3D-printing, is a new and stronger all-in-one component. The original component is prone to breaking and doesn't really fit the tiny space. Using the power of 3D-printing one can create a component that fits this tiny space where other manufacturing methods would not work. By combining all parts you get a new design which weighs 34% less. See figures to the down right.

Imagine what this can do for the whole supply chain. No more piling up parts to have in stock. By using local 3D-printing all across the globe you could get instant delivery of new components. With little to no human hours involved.



You should be convinced of the immense power that 3D-printing holds by now. Start thinking 3D-printing!