

# Influence of process parameters and part orientation on mechanical properties for DMLS manufactured Stainless steel AISI 316L

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## Abstract

The paper is dedicated to test campaign of stainless steel AISI316L (14404) samples manufactured by direct metal laser sintering technology (DMLS). DMLS represents cutting edge manufacturing technology of dimensionally complicated components. In recent years, this technology is implemented into the civilian sector of products with high added value, i.e. molding, aviation and medical industry. Commercialization of this technology is limited by high investment cost and lack of confidence in the quality of printed products. Test build composed of tensile test bars and V-notched impact specimens was designed and manufactured in order to verify materials properties. Attention was also paid to surface roughness, geometry, uniformity of microhardness and internal structure. The spatial anisotropy of mechanical properties dependence was revealed. Laser focusing level towards the level of melting offset (focus move) and its impact on tensile properties were investigated.

*Keywords:* additive manufacturing, direct metal laser sintering, stainless steel, tensile test, notched bar impact testing, anisotropy

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The full text of the paper is not available due to ongoing research. Please contact author for detail information.

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