



Case Study

STIWA Group is an experienced partner in product and high performance automation with approximately 2,000 employees. Besides high-performance automation, core competencies include product and software development for manufacturing automation, supplier production of metal and plastic components, energy-efficient building technology and laboratory automation. For the production of various functional parts, 3D printing is being used.

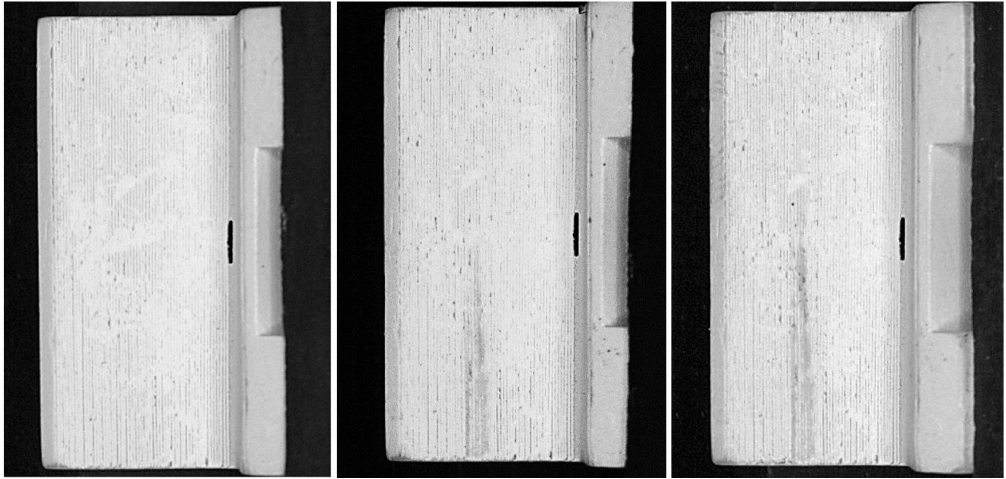
Wear Resistance & Hardness

In an endurance test with a solid carbide milling cutter, grippers produced with the SolFlex 650 3D printer were examined. As results show, the wear resistance of the SolFlex Comp White Material is comparable to the resistance of common tool steels such as X155CrVMo12-1. Also, the hardness of the 3D printed part was far above other DLP resins. The value was even higher than the one of AlMg₃.

Initial State

After 80,000 Cycles

After 320,000 Cycles



Baffle of the Gripper Unit in an Endurance Test
Method of production: 3D printing (DLP method / SolFlex 3D printer with PowerVat)
Resin: SolFlex Comp White (resin filled with amorphous silicon dioxide)

GENERAL PROPERTIES	Test Method	Value
Density		1.6 g/cm ³
Viscosity (at 25 °C)		3,000 mPa*s
Appearance		Opaque, White-Grey
HDT	Method A @ 1.8 MPa	142 °C

MECHANICAL PROPERTIES	Test Method	Value
Tensile Strength	ISO 527	64 MPa
Elongation at Maximum Load	ISO 527	0.91 %
Breaking Stress	ISO 178	56 MPa
Young's Modulus	ISO 178	7,900 MPa
Vickers Hardness		76.3 HV

Properties of the SolFlex Comp White Resin