**EOS StainlessSteel 17-4**

EOS StainlessSteel 17-4 is a pre-alloyed stainless steel in fine powder form. Its composition corresponds to US classification 17-4 PH and European 1.4542 and fulfils the requirements of AMS 5643 for Mn, Mo, Ni, Si, C, Cr and Cu. This kind of steel is characterized by having very good corrosion resistance and mechanical properties, especially excellent ductility in laser processed state, and is widely used in a variety of engineering applications.

This material is ideal for many part-building applications (DirectPart) such as functional metal prototypes, small series products, individualised products or spare parts. Standard processing parameters use full melting of the entire geometry with 20 µm layer thickness, but it is also possible to use skin and core building style to increase the build speed. Using standard parameters the mechanical properties are fairly uniform in all directions. Laser-sintered parts made from EOS StainlessSteel 17-4 can be welded, machined, micro shot-peened, polished and coated if required. Unexposed powder can be reused without restriction or refreshing.

**DirectMetal 20**

DirectMetal 20 is a very fine-grained bronze-based, multi-component metal powder. The resulting parts offer good mechanical properties combined with excellent detail resolution and surface quality. The surfaces can be easily post-processed by shot-peening and can be polished with very little effort. The specially developed powder mixture contains different components which expand during the laser-sintering process, partially compensating for the natural solidification shrinkage and thereby enabling a very high part accuracy to be achieved.

This material is ideal for most prototype injection moulding tooling applications (DirectTool) and for many functional metal prototype applications (DirectPart). It offers the highest building speed and thus is particularly suitable for larger tools and parts. It also offers a broad window of usable process parameters, e.g. a wide range of achievable mechanical properties and build speeds. Standard parameters use 20 µm layer thickness for the skin and 60 µm layers for the core, but for faster building the entire part can be built using 40 µm layers for the skin and 80 µm layers for the core. Using standard skin parameters the mechanical properties are fairly uniform in all directions, which is especially beneficial for many DirectPart applications.

Areas built with core parameters have a porous structure, but the combination of skin and core produces a strong total part. Parts built from DirectMetal 20 also have good corrosion resistance.

*For more information contact:*
Kevin Bell  
Vaupell Rapid Solutions  
603-577-9970  
Kevin.bell@vaupell.com

www.vaupell.com