

# Large, accurate and detailed master patterns for Investment Casting with the Neo 3D printer series.

## Stereolithography 3D Printing Investment Casting Process



### 1 3D PRINTED PATTERN

Investment Casting Patterns are designed in CAD and saved to an STL file which is uploaded to the Neo and printed in hours.



### 2 MOLD ASSEMBLY

Printed patterns are then assembled at the foundry, with the patterns secured on to a central wax bar with gates, called a sprue.



### 3 SHELL BUILDING

A shell mold is created by dipping (investing) the assembly multiple times in ceramic slurry. The first layer allows for the reproduction of fine detailed features. After this coating, the shell is layered with a fine ceramic refractory grain like sand. After drying, the process is repeated to obtain the desired shell thickness.



### 4 BURN OUT

After the shell mold dries, it is typically flash-fired in a furnace to burn out the printed part and remove the shell, leaving a negative impression of the assembly.



### 5 POURING

After burnout, the molten metal is poured into the mold. The mold is preheated prior to pouring in the molten metal using gravity, pressure, vacuum, or centrifugal force become one solid casting as the metal cools.



### 6 SHELL REMOVAL

The ceramic shell is removed from the solid metal



### 7 CUT-OFF

The original parts are now cut from the sprue and gates and ground smooth so that they are ready for additional processes.



### 8 FINISHED METAL PART

Final inspection is performed on each part and is finished using traditional techniques.